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POTENTIAL OF INDIAN WINE MARKETS

From the perspective of foreign distributor

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Executive summary

This study offers an insight of the fairly recent phenomena of Indian wine production and consumption. It is focusing on the business side of Indian wine markets and is conducted from a perspective of a foreign distributor. Its main purposes are to 1) evaluate future potential of Indian wine markets, 2) provide insight of current Indian wine markets and 3) gather information for simple market entry analysis.

The information for simple market entry analysis is presented in various chapters throughout the study; background information on India – history, economy, religions and geography – offers insights of Indian macroeconomic environment, in which the business is made. Current Indian wine markets are studied in more detail, offering thus a more comprehensive picture of that particular industry.

Evaluation of the future potential of Indian wine markets is performed through analyzing the risks and competition in the field; and in addition through regional and statistical analysis, from which the regression model of Indian wine markets is derived. The hypothesis was that *the higher the per capita income and the higher the amount of urban population; the higher the wine consumption will be in that region*. There was supporting evidences in the regional analysis and the regression analysis finally proved the hypothesis correct with validity of 70%. Although the validity of the regression model is good there are some country specific features of India that one has to keep in mind when using this model; such as inequalities in income distribution, which affect the accuracy of the selected variable – *per capita income*.

All in all, the study offers a good picture of current Indian wine markets and market situation with supporting and valid regression model.

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1 INTRODUCTION

Many associate India with poverty, pollution and vast population. Others associate it with the Taj Mahal, the Himalayas, high-tech engineering and software programming. But an image of India as a wine producing and consuming country comes to hardly anyone's mind. However, over the past few decades India's own production of wine has increased rapidly and the consumption of wine has multiplied within few years. It is true that the absolute volume of wine production and consumption – as well as their values - is still at very low levels compared to the well-known Old World and New World wine countries, but it's the pace of growth and future potential that has caught the common interest – and my interest in particular, thus this study deals with potential of Indian wine markets.

Because the phenomena of Indian wine production and consumption are still rather recent, there are not many studies about them yet. The research gap exists and this was in favour of studying the subject, but caused also a reasonable amount of extra work in order to get hold of relevant and reliable data and sources. Thus the reliability of the sources is emphasized.

Focus of this study is on the business side of Indian wine markets, especially from a foreign distributor's point of view. However, in order to study this successfully one also have to pay some attention to India's history, religions, culture and consumption habits – for the wine markets, the changes in the latter two are especially important to understand due to reasons to be introduced in the chapter of *Background information on India*.

1.1 Purpose of the study

The purpose of this study is to analyze the potential of Indian wine markets, especially from a foreign distributor's point of view. I have been interested in wines and in wine business for several years. In my Bachelor's thesis I studied the competitiveness of Chilean wine industry and that time the focus was on the production side of the business. It felt like it was a natural choice to study the wine business field also in my Master's thesis, but from a different angle and of different geographical region. My personal interest in India is due to the fact that I have lived a year in Mumbai (India) some years back. Diversity of the country and its people fascinated me, at the same time one could notice the undergoing changes in cultural and consumer behaviors – in my opinion, it is these changes that have created a possibility for such a rapid growth rates in wine consumption in India. This determined the geographical region of the study. The foreign distributor's point of view comes from personal interest in international wine business and possible business opportunities in the growing Indian markets.

Indian wine production and consumption are fairly recent phenomena and thus they have not yet been widely studied, actually there are only very few studies about them and a research gap exist. Almost all, if not all, existing studies are made by market research companies and a like, so they are business products not studies available for wider audiences – this explains why so few people even know about Indian wine markets and why it was so difficult to find proper data. I also had to rely on one of the paid studies, but did so only after careful evaluation of the reliability and accuracy of the study. After visiting several internet pages dealing with Indian wine markets and taking part in many forums and discussions on the matter, I was convinced that I found a reliable and accurate study made by two of the Indian wine and wine business top professionals. Most of the wine sales and consumption related data are based on that study.

Economical importance of Indian wine markets is still small: total revenue of the Indian wine markets in 2004 was approximately 46.6 million USD (exchange rate used in this study: 1 USD = 44.9 Indian Rupees, same rate is also used in tables and figures of *Indian*

wine industry report 2004-2005) and total volume was approximately 600 000 cases (5,4 million litres). However, the markets have grown at the rate of 25-30% per annum and are expected to continue to grow at as high rates in the future. Thus Indian wine markets will most probably have some economical importance in the future. Behind this rapid growth are the increasing size of urban middle and upper-middle classes and the changes in their consumer behaviour and habits. (Bagul & Singh, 2005)

Three main purposes of this study are to:

- *Provide insight of current Indian wine markets*
- *Evaluate the future potential of Indian wine markets*
- *Gather information for simple market entry analysis*

In all these aspects the study is conducted keeping in mind the foreign distributor's perspective.

1.2 Analytical methods used

In this study I will use PEST –analysis, Porter's Five Competitive Forces –model and demographic and economic variables - through statistics based quantitative study; regression analysis, in order to fulfil the purposes of this study. I will provide insight of current Indian wine markets through literature review, after that I will try to evaluate future potential of Indian wine markets by estimating the risks through the PEST –analysis and competition through Porter's Five Competitive Forces –model. I will also try to find possible connections between Indian wine markets, changes in them and some demographic and economic variables – and try to determine whether it would be possible to predict Indian wine markets through those variables with a regression model. By using all the information and the methods mentioned above, this study should provide enough information for a simple macro-level market entry analysis.

1.2.1 PEST –analysis

PEST –analysis is a scan of external macro-environment in which the company operates and can be expressed through **P**olitical, **E**conomical, **S**ocial and **T**echnological factors (PEST, QuickMBA). PEST –analysis can be used as a part of overall environmental scan as can be seen in *Figure 1*. In this study I use the PEST –analysis to estimate the risks of a foreign distributor in Indian wine markets. Although India is a large country in size and there are regional differences, I will conduct the PEST –analysis in general level in a way that India is considered as a whole and some regional differences might be overlooked.

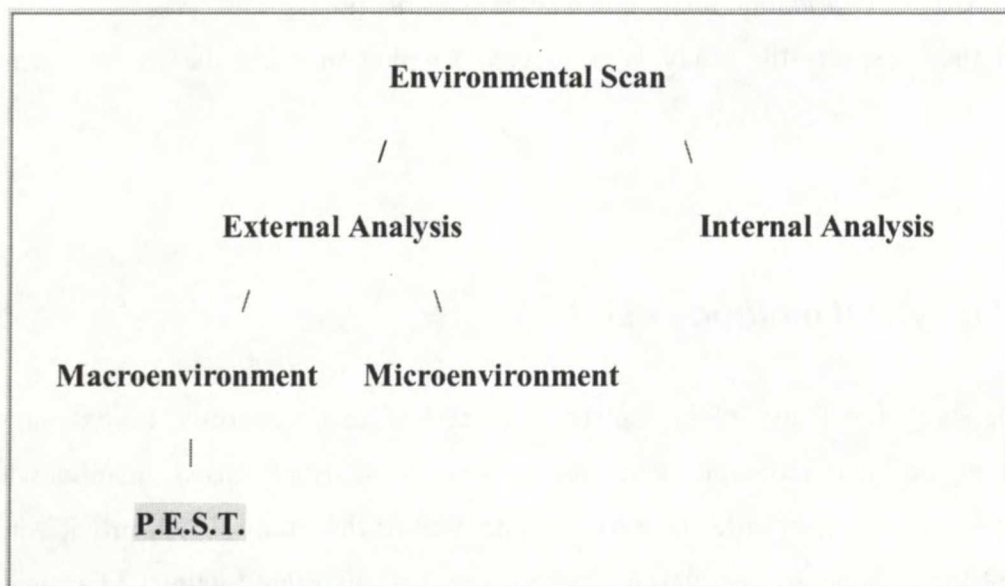


Figure 1: PEST –analysis as part of overall environmental scan

Political factors. Political factors define both formal – government regulations and legal issues - and informal rules under which the company must operate. (PEST)

Economic factors. Economic factors are macroeconomic factors of the country and they affect the purchasing power of potential customers and company's cost of capital in that country. (Ibid)

Social factors. Social factors include both demographic and cultural aspects of macroenvironment, which in turn affect customer needs and size of the potential markets. (Ibid)

Technological factors. Technological factors affect various business decisions and operations – they can lower barriers to entry, reduce minimum efficient production levels and have influence on outsourcing decisions. (Ibid)

1.2.2 Porter's Five Competitive Forces –model

Through Porter's Five Competitive Forces -model competitiveness of an industry can be analyzed and in this study I will use it to analyze the competition in Indian wine markets from a foreign distributor's point of view. Like in PEST –analysis, I will study India as a whole, overlooking some regional differences.

Theoretically; when a pure competition implies, what is believed to be the case in the free market economies, all companies and industries should have the same risk-adjusted rates of return (Porter, 1980). However, many economic studies have shown that in practice the levels of profitability vary from company to company within an industry and especially between industries. The structure of an industry has often been used to explain those differences in profitability. To explain the competitive structure of an industry Michael E. Porter developed a framework to analyze an industry; this framework is better known as Porter's Five Competitive Forces -model.

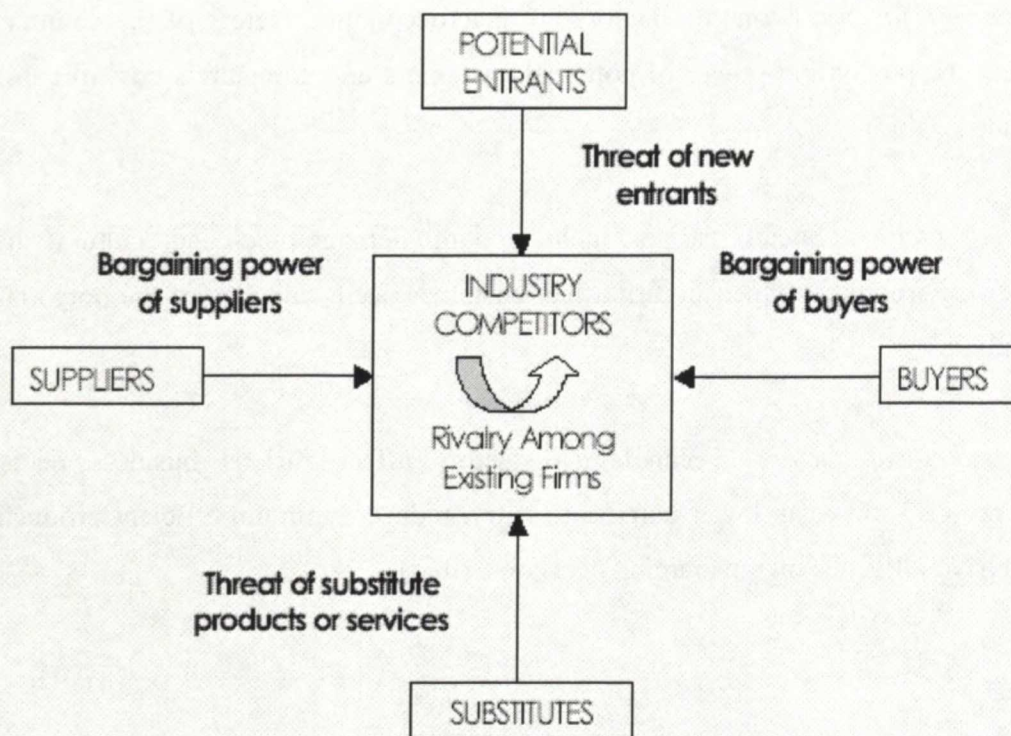


Figure 2: Porter's Five Competitive Forces- model (Porter, 1980)

Porter's Five Competitive Forces- model for industry analysis illustrates the primary forces that determine competition in an industry and shows how those forces relate with each other. The five main forces determining industry's competitiveness are 1) *customers*, 2) *competitors*, 3) *suppliers*, 4) *substitute products* and 5) *new entrants* (Porter, 1980).

1.2.3 Use of demographic and economic variables in predicting Indian wine markets; regression analysis

Demand for wine can be forecasted on the basis of demographic and economic variables applying regression analysis. The goal of a regression analysis is to determine the values of parameters for a function that shows the interdependence of wine consumption. If this kind of connection can be found, I will try to determine whether it would be possible to predict

the Indian wine consumption in general through those variables based on a regression model. In this section I study four different parts of India - north, east, south and west - and try to find out some patterns between those variables and wine consumption.

For this purpose I have selected two variables: 1) urban population and 2) Gross State Domestic Product, GSDP per capita (also Net State Domestic Product, NSDP). Indian wine markets can also be classified into two segments: domestic and foreign tourists. Urban middle and upper-middle classes count almost all of the domestic markets (Bagul & Singh, 2005). The selected variables should demonstrate the urban middle class pretty well and thus it should be possible that some connections exist between them and wine markets. If no such connections are found, I try to identify and explain the possible causes of variations.

When choosing the variables I also considered taking religion and sex ratio into the study. Religion has had a great effect on consumer behaviour in the past, but currently can be noticed that the culture is westernizing to some extent – whether it is good or not, is out of this study's scope – and thus it is much more difficult to explain consumer behaviour on the basis of religion. What comes to sex ratio, it is true that mostly women consume much less wine and other alcohol in India than men, but as the ratio is close to 50:50 throughout the country, the variable is not relevant.

1.3 Limitations of the study

This study is conducted as a Master's thesis and thus the extent of the study must be restricted. For this reason one must understand that this study is not fully comprehensive, but it gives a good and accurate picture of the issues and analysis that it deals with.

As the perspective of study is that of a foreign distributor, analysis of wine markets is limited to the premium wine sector (still and sparkling wines) – in which majority, if not all, foreign distributors operate.

Reference material

Partly the limitations of this study are also due to the lack of information or, to be more precise, lack of funds to buy the needed information. As mentioned earlier, there aren't yet many studies on the field and the existing ones are often made by market research companies and a like, so everything costs. Due to limited funds, I could only get hold of one of those reports – a study that is accurate and relevant (see summary of the report as *Appendix I*), but area wise limited to 10 Indian states (which account as almost all of Indian wine markets) and thus my study will be limited to those states as well, in parts that are based on information from that report (i.e. *Predicting Indian wine markets*). In other parts my study is limited to India as a whole and thus might overlook some regional differences and variations, but still trying to give a good and accurate picture of the issues.

Electronic references. As mentioned there are very few studies on Indian wine markets, thus it is hard to find literature of the matter. That is why many of my references are www-pages. In general, the information found from the World Wide Web cannot be considered as reliable as from traditional written sources. There is much less control on the authors of the www-pages, thus I have tried, to my best ability, to evaluate the reliability and accuracy of information on the www-pages used as references. On the other hand, this kind of procedure offers me a chance to use the latest information available on the subject, thus I see that extensive use of www-pages as references is justified.

Theoretical models

PEST –analysis. This model is used to analyze the risk of operating in general in India from a foreign distributor's point of view; who naturally is more concerned on restrictions and risks on international trade (importing to India) than on domestic land taxes (etc.) that might affect him only indirectly in forms of warehousing expenses (etc.).

Porter's Five Competitive Forces -model. This model is used to analyze the competition on Indian wine markets and will be limited to factors determined in the model. The Five Competitive Forces -model of Porter has also been criticized that it was developed and published over 20 years ago, in 1980. At the time, the model definitely suited well the

business environment and atmosphere. Since then a lot has changed in the field of business, especially rapid technological development with its effects on communication and information transferring have transformed operational methods and created new ways of doing business (1000ventures.com). Although the wine industry and markets are also changing their practices and nowadays business-like methods are used, the way industry is working is still changing in rather slow pace – not be mixed with rapid growth of the markets - and the effects of technological development are less significant compared to the other industries, thus the analysis by Five Competitive Forces -model is accurate.

Use of demographic and economic variables in predicting Indian wine markets. As mentioned in limitations of the *reference material*, there were no studies – of reasonable cost - available with a large database and statistics on Indian regional wine markets. However, as will be shown in chapter *Predicting Indian wine markets*, the results of quantitative study are unlikely to change would I have more comprehensive studies at use than the *Indian Wine Industry Report 2004-2005*, in which ten states and time span of 1997, 2001-2004 are covered. The derived regression model also has some limitations, which are discussed in *Conditions of the regression model* –chapter.

2 TERMS USED

Case. Volume term, which refers to a wine case of 12 bottles, equal to $(12 \times 0,751 =) 9,0$ litres.

Crore. Indian numerical term, 1 crore = 10 million.

Lac. (Lakh) Indian numerical term, 1 lac = 100 000.

New World. Countries, where the viticulture came with European explorers or conquerors: North America (the United States, Canada and Mexico), South America (Argentina and Chile), South Africa, Australia and New Zealand.

Old World. The traditional European wine producing countries: France, Italy, Spain, Portugal and Germany.

Phylloxera. The grape phylloxera is an aphid-like insect, which destroys the vine roots. The phylloxera has affected the wine industries all over the world, vines of some regions (such as Chile and California) are resistant to it.

Rupee. (INR, Rs) Currency of India. Exchange rate used in this study: 1 USD = 44.90 Rupees.

Viticulture. According to Oxford English Dictionary, viticulture means the cultivation of grapevines and the study of grape cultivation. In this study the term is used more broadly to mean the wine cultivation, production and industry as a whole.

3 BACKGROUND INFORMATION ON INDIA

Before we go into in detail analysis of Indian wine markets it is important to have basic understanding of the environment in which these markets and players of the markets operate. Also, one of the purposes of this study is to gather information for a simple market entry analysis and this section presents supporting information for that kind of analysis. Thus in this chapter I will go through the basics of India's history, religions and economy - the *History* chapter is presented quite extensively as it will offer a good basis and support for the other chapters. Those three features have also had great impact on shaping the Indian wine markets (or lack of it) in the past and changes in them; and are the reasons behind the rapid wine market growth. Geography of India is also presented to give a better understanding of the country as a whole and the separate regions dealt with in the later chapters.

Basic facts of India have been presented as *Appendix 2*.

3.1 History

India's earliest known civilization, *the Indus Valley civilization*, dates back to 2500 BC and there has been continuous civilization ever since. Inhabitants of the Indus River Valley developed an urban culture which was based on commerce and sustained by agricultural trade. (World 66) The civilization was famed for its complex culture and specialized artefacts; and its cities were carefully planned, with proper water-supply systems, sewage facilities and centralized granaries. Despite the developed infrastructure, the Indus civilization experienced rather fast declining after 1800 BC, the cause of the decline is uncertain, but many theories suggest extreme climatic changes or natural disasters. (Encarta)

In about 1500 BC *the Aryans*, nomadic people from Central Asia, settled in the Indus, Yamuna and Gangetic plains. These people are particularly important to India's history as they originated the earliest forms of sacred *Vedas*, which are orally transmitted texts of god devotion, manuals of sacrifice for their worship; and philosophical speculations. The Vedas are considered as the core of Hinduism (Encarta) Also, as they were settling to new areas, they adapted to antecedent cultures (World 66). The Aryans ruled the societies, which were divided into hereditary groups. This structure was the beginning of the caste system, which has partly survived until present day India. The castes were: *the Brahmans* – priests; *the Kshatriyas* – warriors and rulers; *the Vaisyas* – merchants, farmers and traders; and *the Sudras* – artisans, labourers and servants. (Encarta)

There were numerous kingdoms with fluctuating boundaries in India and by 7th century they started to combine and grow, creating larger kingdoms. The first great empire in India was *the Mauryan Empire* in northern India. (World 66) However, the Mauryan Empire disintegrated rapidly after Asoka's; the greatest Mauryan king – grandson of the first emperor, death in 232 BC and invaders fought over the outlying territories in the north, while regional monarchies gained power in the south. During this time India was at the centre of global economy with social links to all of Asia and there was extensive trade with the Roman Empire. (Encarta)

In about AD 320 the ruler of the Magadha kingdom united many small northern kingdoms and founded *the Gupta Dynasty* reaching the rule to almost all of the country and most of the country was under unified control for the first time after the Mauryan Empire. The Gupta dynasty has been called the golden age of Indian civilization, because of the period's blooming literature, arts and science. The level of science and technology was probably higher in India than in Europe during this era. Although the Gupta dynasty faced many challenges during its rule, it was able to defeat its internal and external enemies until about AD 500, after that India was divided into many regional kingdoms.

During the 10th and 11th centuries Turks and Afghans were invading northern India and established sultanates in Delhi and Islam started to spread across the subcontinent. From the 11th to 16th century southern India was mainly dominated by Hindu rulers and

northern India by Muslim rulers. (World 66) Many Indians converted to Islam during this era, but there are no records of forced mass conversion by Muslim rulers. (Encarta)

3.1.1 Europeans in India

Already during the 15th century the Europeans were interested in developing trade opportunities with India and in a new trade route to East Asia. In 1498 Portuguese Vasco da Cama sailed into Indian harbour at Calicut (now Kozhikode). Friendly relations between the dominant kingdoms and the Portuguese secured lucrative trade routes on the coast of India in the early 16th century. For the first two centuries the activities of the Europeans were restricted to trade and evangelism; and their presence was protected by naval forces. Christianity rapidly followed the trade and with missionaries converting tens of thousands of Indians in the coastal areas and southern India, this was the first step of Christian minority in India. The Dutch replaced the Portuguese as masters of the seas around India in the 17th century, at the same time the Dutch East India Company and the English East India Company were competing in trade. Both started with trading spices and expanded to Indian textiles. (Encarta) Both also opened trading stations along the bigger coastline cities with protection of native rulers. (World 66) By the 18th century British sea power was able to match with that of the Dutch; and the European rivalry began to show military aspects. As the French started to be a serious threat to the English East India Company in mid 18th century, the war between the British and French broke out. At the same time the unstable situation of Indian kingdoms and their warring rulers called for well-trained and disciplined French and British military assistance. Both helped kindly, although behind the assistance was their own agendas of expanding political and territorial power in India. As the British started to fortify Fort William in Calcutta against possible French attacks, a ruler - *nawab* attacked Calcutta as a response to that sort of unauthorized activity. Some British survivors were imprisoned in a small dungeon known as the Black Hole of Calcutta, where many of

them died. After this incident, British troops from Madras moved north and defeated the nawab in 1757. This marked the first stage of the British conquest of India. (Encarta)

Treaties made with Indian princes provided stationing for British troops within the princely states and the English East India Company continued to extend its control over India during the 18th and 19th centuries. In order to pay for their troops, British were often given revenue collecting rights in certain parts of the states, thus giving them indirect control over those areas. The British extended the areas under their rule also by military means. In late 18th century the British Parliament gave British governors greater control over the English East India Company and thus its activities were now supervised by parliament, it also established post of governor-general of India. British control over India tightened and the development of British textile industry forced a transformation in Indian economy: India had to produce raw cotton for export and buy back manufactured goods from England; while Indian textile industry was ruined. As the British rule strengthened and as an influential evangelical Christian movement emerged in the early 19th century, Indian customs were judged more harshly. In 1835 English was forced as the language of government. Later during that century the British introduced many innovations and reforms - such as construction of railroads and irrigation systems; and telegraph and postal services - however, they aroused only little enthusiasm among the Indian people. (Encarta) In 1857, a rebellion, *the Sepoy Rebellion*, in the north India led by disobedient Indian soldiers caused the British Parliament to transfer all political power from the English East India Company to the Crown. As a result the Great Britain started to administer most of India directly and controlling the rest through treaties made with local rulers. (World 66) Indian economy was then even more closely linked to that of England and Indian entrepreneurs were discouraged in order to secure the markets for goods imported from England. However, some industries did develop in India, but mostly by British firms. (Encarta)

3.1.2 Independence

After the Sepoy Rebellion, political awareness of the abuses of British rule increased among the Indian people. Dissatisfaction took organized political form in 1885, when the English-educated intelligentsia that grew up in India's major cities with the help of some sympathetic Englishmen formed *the Indian National Congress*. For the first decade of its existence the Congress served as a forum for debate on questions of British policy toward India and as a platform to push for economic and social changes in India. The argument that Great Britain was taking advantage of India and its wealth by unfair trade regulations was central to newly developed Indian identity. Hindu social reform that had begun some 50 years earlier contributed ideas about the injustice of caste and gender discrimination and some leaders were able to mobilize large crowds for their cause – evoking the idea of nationalism in some sense. Movement of Bengal origin introduced boycotts and campaign against British goods, especially textiles. Some people formed small terrorist groups that assassinated some British officials. The movement started to spread throughout the country. During the early 20th century many Indian extremists were imprisoned by the British. (Encarta)

During the World War I (1914-1918) India was a major source of support for Britain's war efforts, approximately 750 000 Indian troops served in Europe, the Middle East and Africa. One of the most famous Indians, Mahatma *Gandhi* returned to India from South Africa in 1915, he had made earlier trips to India and was thus already an important political leader at the time of his return. He became known for his non-violent resistance campaigns. In some of the campaigns Hindus, Muslims and Sikhs participated together; creating thus a sense of stronger national identity. As the WW I ended, the British introduced new reforms, which brought some Indian control over certain executive departments and greater representation of Indians in the central legislative council. In 1929 the Congress issued a demand for "complete independence" in its annual session. After yet another massive movement of people led by Gandhi, British government finally gave in and so Gandhi went to London as the sole representative of the Congress to negotiate new set of reforms.

When World War II broke out in 1939, the British declared war on India's behalf without consulting the Indian leaders. In 1942 Gandhi declared "Quit India" movement urging the British to withdraw from India immediately, as a consequence he was sent to jail along with other Congress leaders and violent demonstrations erupted in the country. After the WW II was over negotiations over Indian independence started again, but internal differences between the Congress and the Muslim League overshadowed them. Harsh Hindu-Muslim riots broke out in Calcutta and spread throughout India. In June 1947 the Congress and the Muslim League leaders agreed – against Gandhi's will – to a partition of the country along the religious lines; Hindu areas being allocated to India and Muslim areas to East and West Pakistan. India's official Independence Day is August 15, 1947. (Encarta)

3.1.3 After independence

Although India was now independent it was still far from unified country, status of some princely states remained unsettled at independence and those didn't belong to India nor Pakistan – to mention one; Jammu and Kashmir, of which India and Pakistan have been in wars and the problems still remain. France and Portugal also held territories on the Indian coast after the independence; the French territories were ceded to India in 1956 and the Portuguese by December 1961 with the help of Indian army. Under the leadership of Jawaharlal Nehru the government attempted to develop India quickly by embarking on agrarian reform and rapid industrialization. Investments in basic industries and infrastructure were reserved for the public sector, most other economic activities were in private hands – although the entrepreneurs were subject to complex licences and controls. Central government controlled foreign trade strictly. The conflict with China over some uninhabited land in north-eastern corner of India, a conflict that India lost, caused India's massive arms procurement and modernization of its armed forces. (Encarta)

In late 1960s India entered into a period of severe economic crisis caused by the successive monsoon failures and failures in the strategy of self-reliant industrialization to

generate needed resources for additional investments. As Indira Gandhi; Nehru's daughter who had been an elected member of parliament since 1955, became the Prime Minister she took bold initiative in the atmosphere of political instability and economic crisis; nationalized the largest banks of the country and abolished payments of personal allowances to the Indian princes – which had pursued them to become part of the Indian union in peace at independence. After India's support to the freedom fighters of East Pakistan, which then became Bangladesh, another conflict between Pakistan and India broke out. This time the solution was quick as India invaded Pakistan in order to liberate East Pakistan. This victory restored India's pride after the humiliating earlier defeat by China, but did all but good to Pakistan – India relations. The economic conditions did not, however, recover and the worldwide oil crisis in 1973 along with the poor harvest brought about severe inflation. By spring 1975 the harsh economic conditions had brought economy back under control. (Encarta) Due to these problems Mrs. Gandhi declared a state of emergency and suspended many civil liberties. (World 66) In 1977 elections Indira Gandhi lost, but returned to power in 1980 elections with her Congress (I) Party – party formed earlier in the basis of Indian National Congress. In 1984 Gandhi ordered the army to fight its way through to the main shrine of the Sikh religion, the Golden Temple, where Sikh terrorist campaigning for a Sikh state in Punjab had established their headquarters. Many of the terrorists died along with their leaders in the fight and most of the building complex was damaged. Sikhs throughout the country were outraged and later that year Indira Gandhi was assassinated by the Sikh members of her security team. As a consequence of the assassination, thousands of Sikhs were killed in Delhi and other northern cities. Indira Gandhi's politically inexperienced son Rajiv was rapidly chosen to replace his mother and he continued to accelerate the economic liberalization that his mother had begun. Economic growth did accelerate to record levels, but it was mainly fuelled by large-scale external borrowing – and much of the government funds were going to modernization of its armed forces. (Encarta)

In 1991, after Rajiv Gandhi had been assassinated by a Sri Lankan Tamil terrorist, former foreign minister P.V. Narasimha Rao took the lead. By that time India was facing

such a hard economic crisis that it was threatened with bankruptcy. Rao took economic reform as the first item on his agenda and many of the burdensome controls on private companies were abolished. His government also lowered tariff rates to encourage trade and welcomed foreign investments. The gross domestic product, GDP started to grow, trade was expanding rapidly and private entrepreneurship was booming. Indian states started to compete for private and foreign investments with different kind of incentives and they also took small steps to privatize their own public-sector companies. (Encarta) All this can be seen as a giant step toward opening Indian economy to the world. (World 66) Due to other political issues, such as Hindu nationalism, these economic reforms faced hardly any political resistance. This Hindu nationalism led eventually to Hindu – Muslim riots and violence, in which thousands lost their lives. (Encarta)

Elections of 1996 were overshadowed by a scandal of corruption of most senior politicians; it was period of unrest in India and also caused concerns on foreign investors' behalf. Over the next two years the political situation was rather unstable - people and parties in lead were shifting rapidly. In 1998 Hindu nationalist party Bharatiya Janata Party, BJP won the elections with its regional party allies. Only two months after its raise to power, BJP-led government followed its promise to make India into a nuclear power and test of five nuclear devices were detonated underground. Pakistan responded to this with its own tests and situation between the two tightened again. In early 1999 leaders of both countries agreed to commit to improve relations between them; due to international pressure. In 1999 the BJP won the elections again with its allies. Government continued to pursue economic reforms with enthusiasm: remarkable economic growth was achieved, many state-owned enterprises were sold to private sector and foreign investments were pouring into the country. Information technology became soon a vital sector of economy leading to development of new high-tech centres. Increase in per capita income also helped to alleviate poverty, although the economic growth mostly benefited India's middle and upper-middle classes; which formed the base of BJP support.

Due to conflicts and accusations of Pakistan supporting the Kashmir-based militants, relations between India and Pakistan deteriorated rapidly again in 2001. Both

countries started to build up armed forces against their common border. Intense international diplomacy was used to solve the crisis and in 2003 both countries agreed to restore full diplomatic ties. After this both have also made diplomatic moves to improve trade and transportation ties. (Encarta)

2004 elections were expected to be continuum of BJP lead, as economy was booming and relations with Pakistan had improved. The elections, however, resulted a surprise victory of the Congress Party that had campaigned on a platform that appealed to millions of Indian living in poverty. As a consequence of this surprising result India's stock markets experienced the biggest one-day plunge of its history as the investors feared that economic reforms could be slowed or halted due to pressure from the political left. After the new prime minister, Manmohan Singh – who was a respected planner of many of India's economic reforms, was announced the markets recovered. Late 2004 another unexpected incident struck also India, the *tsunami* disaster. It cost tens of thousands of lives along the Indian coastline and affected severely the fishing industry.

3.2 Religions

As the *History* chapter pointed out religions have been involved in many issues in India, all in all the country was divided into India and Pakistan along the religious boundaries. Currently approximately 81% of Indian population are Hindus, 12% are Muslims, 2% Christians and 2% Sikhs, the remaining 3% are Buddhists, Jains, Parsis and others (Bartleby). Although the religion is not playing that important role in Indian everyday life any more, it certainly has affected attitudes and consumption behaviour of the people in the past and what is most important from point of view of this study, neither of the big religions in India, Hinduism or Islam, are “in favour” of wine consumption. Although the religion's role – in consumption behaviour - has diminished a little, I still think that it is important to know at least the basics of both, Hinduism and Islam, as they might be less known for many foreigners.

3.2.1 Hinduism

Hindu was primarily a geographical term that referred to India or to region of India as long ago as 6th century BC. The word *Hinduism* entered the English language in the early 19th century to describe the beliefs and practices of those Indian residents, who had not converted to Islam or Christianity and did not practice Judaism or Zoroastrianism. Hindus themselves prefer to use the Sanskrit term *sanātana dharma*; *sanatanā* – eternal, but *dharma* can be translated in number of ways; tradition, religion, moral order, duty and right action; to mention few. (Encarta)

Hinduism is generally regarded as the world's oldest organized religion; it consists of thousands of different religious groups that have evolved in India since 1500 BC (Religioustolerance). The Hindu tradition encourages Hindus to seek spiritual and moral truth wherever it might be found, while acknowledging that no faith can contain such truth in its fullness and that each individual must realize this through own systematic effort. Hindu scripture – based on insights of Hindu sages and seers, serves primarily as a guidebook; their sacred texts are known as the *Vedas*, but ultimately truth comes to us through direct consciousness of the divine or the ultimate – in other religions this ultimate reality is often known as God, but Hindus refer to it by many names, the most common name is Brahman. In many religions truth is delivered or revealed from a divine source and enters the world through a single agent; for example, Abraham in Judaism, Jesus in Christianity; and Muhammad in Islam. In the Hindu tradition by contrast there is no single revelation or established doctrine by which people may achieve knowledge of the divine and it acknowledges that there are many paths by which people may seek and experience religious understanding and direction. (Encarta)

Hindus today number nearly 900 million, including about 20 million living outside India, making them the third largest religious group in the world after Christians and Muslims (Religioustolerance). Three other religions that have origins in India are also closely linked to Hinduism: Buddhism, Jainism and Sikhism. (Encarta)

Alcohol usage of the Aryans and other ancestors is mentioned in Hindu scripture. Although the alcohol consumption is not encouraged or part of their rituals, alcohol is tolerated in Hindu society, but only in moderation. (SortingItOut)

3.2.2 Islam

The word *Islam* means “surrender” or “submission” – submission to the will of God – in the Arabic language. A follower of Islam is called a *Muslim*, which in Arabic means “one who surrenders to God”. The Arabic name for God, *Allah*, refers to the God worshiped by Jews and Christians. (Encarta)

Muhammad, who was born in Mecca around AD 570, is the founding prophet of Islam. The new religion of Islam taught that there was one God and through his messengers God had sent various codes or systems of laws for living - culminating in the Qur'an (Koran), the holy book of Islam. Muhammad was the last in a series of prophets and messengers. These messengers were mortal men and they included among many others Moses - the Hebrew prophet and lawgiver, and Jesus - whom Christians believe to be the son of God rather than a prophet. The five pillars of Islam, the essential religious duties required of every adult Muslim who is mentally able, are described in Qur'an and were already practices during Muhammad's lifetime. These five pillars are: *shahada* – faith; *salaf* – prayer; *zakat* – almsgiving; *sawn* – fasting during Ramadan, the 9th month of the 12-month Islamic lunar year; and *haji* – pilgrimage. Some Muslims consider *jihad* as the sixth pillar of Islam, it has been understood to mean holy war, however, the word in Arabic means “to struggle” or “to exhaust one's effort”, in order to please God. Western media of the 20th century continue to focus on the militant interpretations of the concept of jihad, whereas most Muslims do not follow those believes. (Encarta)

Currently the Muslim community comprises about 1 billion followers on all five continents and it is the fastest growing religion in the world. One of the reasons for the fast growth of the Muslim community has been its openness to new members. Children born to

Muslim parents are automatically considered Muslim. Also, a non-Muslim can convert to Islam by declaring himself or herself to be a Muslim. A person's declaration of faith is sufficient evidence of conversion to Islam and need not be confirmed by others or by religious authorities. (Encarta)

Alcohol is prohibited to Muslims due to *khamr*, as it causes people to lose control over their minds and bodies. The word *khamr* describe substances that fog the mind; it generally means "poison" or "intoxicant". Second source of authority in Islam is *hadith*; it complement the Qur'an and provides most extensive source for Islamic laws. This is a part of *hadith*: "*Allah has cursed khamr, those who produce it, those for whom it is produced, those who drink it, those who serve it, those who carry it, those who it is carried to, those who sell it and those who buy it.*" (SortingItOut)

3.3 Economy

Recently the Indian economy has been among the fastest growing economies in the world with annual GDP growth rate being 7-8%. (Finpro) The population of over a billion provides a firm consumer base, but the economical situation of the country is much more complex than it might first seem. For example, despite the rapid economic growth 25% of the population still live in poverty (Bartleby), poverty being major problem in rural areas (Finpro).

As the *History* chapter pointed out, industrialization came late to India, much due to British colonial rule and their practices to discourage Indian industrialization and steer economy toward primary production; to produce raw materials for British industries. The *History* chapter took us also through other early economical issues and thus this chapter will focus on recent developments and current economical situation. Until the policies of economic liberalization introduced in the late 1970s that stimulated the industrial sector, agriculture was the most important sector of the economy. Until 1991 the economy of India

was also practically closed, since then the slow opening of the economy has been going on and is still partly under its way. (Finpro,2005)

3.3.1 Beginning of trade liberalization

The financial crisis in 1991 compelled India to institute major economic reforms. Petroleum was a major import to India and after the rise in oil prices due to the Persian Gulf War (1990-1991), India faced a serious balance-of-payments deficit. In order to be able to obtain emergency loans from international economic organizations, India agreed to adopt reforms that were aimed to liberalize its economy. The reforms included removal of many government regulations on investments – including foreign investments; and elimination of the quota and tariff system that had kept the international trade at a low level. These reforms also began a process of deregulation of industries and privatization of public enterprises. (Encarta)

In the mid-1990s the service sector emerged as a primary economic stimulus; due to growing business economy in urban areas and large government bureaucracy. Although the economic structure of the economy had started to change, agriculture remained the most important sector in employment terms. Economic development was also regionally uneven; as prosperity of the more developed states was standing as a sharp contrast to the extreme poverty of rather undeveloped states. (Encarta)

3.3.2 Privatization of the public sector

In 1999 the government made privatization of the public sector the centrepiece of its agenda. Private investments were permitted in all infrastructure industries; including formerly public sector controlled power, telecommunications, civil aviation and financial sectors. Only few sectors remained to be reserved for the public sector, such as defence

equipment, railways and nuclear energy. With these new reforms India made a dramatic shift toward economy relatively open to the global economy. Growth of exports has helped India to increase its share of global trade and the inflow of foreign capital has helped India in reducing its external debts that have built up in past decades. The demand for all consumer goods grew as the economic growth expanded the middle class with increased disposable income. Unfortunately, despite the emergence of a consumer-oriented middle class, income inequalities and poverty remain to be significant issues. (Encarta)

3.3.3 Current economic situation

In this chapter I will introduce the current economic situation of India in general terms; the specific features of wine industry and trade will be dealt with when analyzing the risks and competition.

The economy has posted an excellent average annual growth rate of 6.8% since 1994, and poverty has been reduced by 10 percentage points. (World 66) In general the Indian economy is a mixture of traditional agriculture, handicrafts, modern industries and multitude of services. Agriculture counts for approximately 25%, industry for 25% and services for 50% of the GDP, but although the share of agriculture has dropped to 25% it is still very important as it provides income for 70% of the population and is very sensitive to climate. Economically, could be said that India has been divided into two “worlds”: poor rural villages and rich rapidly developing urban regions. (Encarta) This also illustrates the reality of inequalities in income distribution. There are also huge regional differences in state level. After the government gave the states more freedom in economic decisions, the differences arouse. Well-led, more urban and open to development, states have been able to take advantage of this situation, while in the conservative rural states this has mainly increased the corruption and led to unwise decisions. States have also been able to lure foreign and private investments through state level tax and other incentives. (Encarta)

India has been able to keep the inflation moderate for over 10 years; with the exception of fiscal year 1998-1999, when consumer prices rose 13,2% - and it has been at level of 4%. 2001-2002 was the first time in 23 years that Indian had balance-of-payments surplus; one of the main reasons was the expansion of the software industry. In general, federal budget has been strongly in deficit; although the situation has improved from the early 1990s. Reasons of the deficit are structural: poor accumulation of taxes, lack of monitoring over state-level decisions, excessive subsidies on petroleum and food, maintenance and support of lost generating public enterprises, increasing defence expenditure and pay back of external debts. As some 45% of government income goes for salaries, pensions and defence expenditure, similar amount to pay back of external loans; social, education and healthcare expenditure along with the infrastructure have to be financed more and more on additional loans. (Encarta)

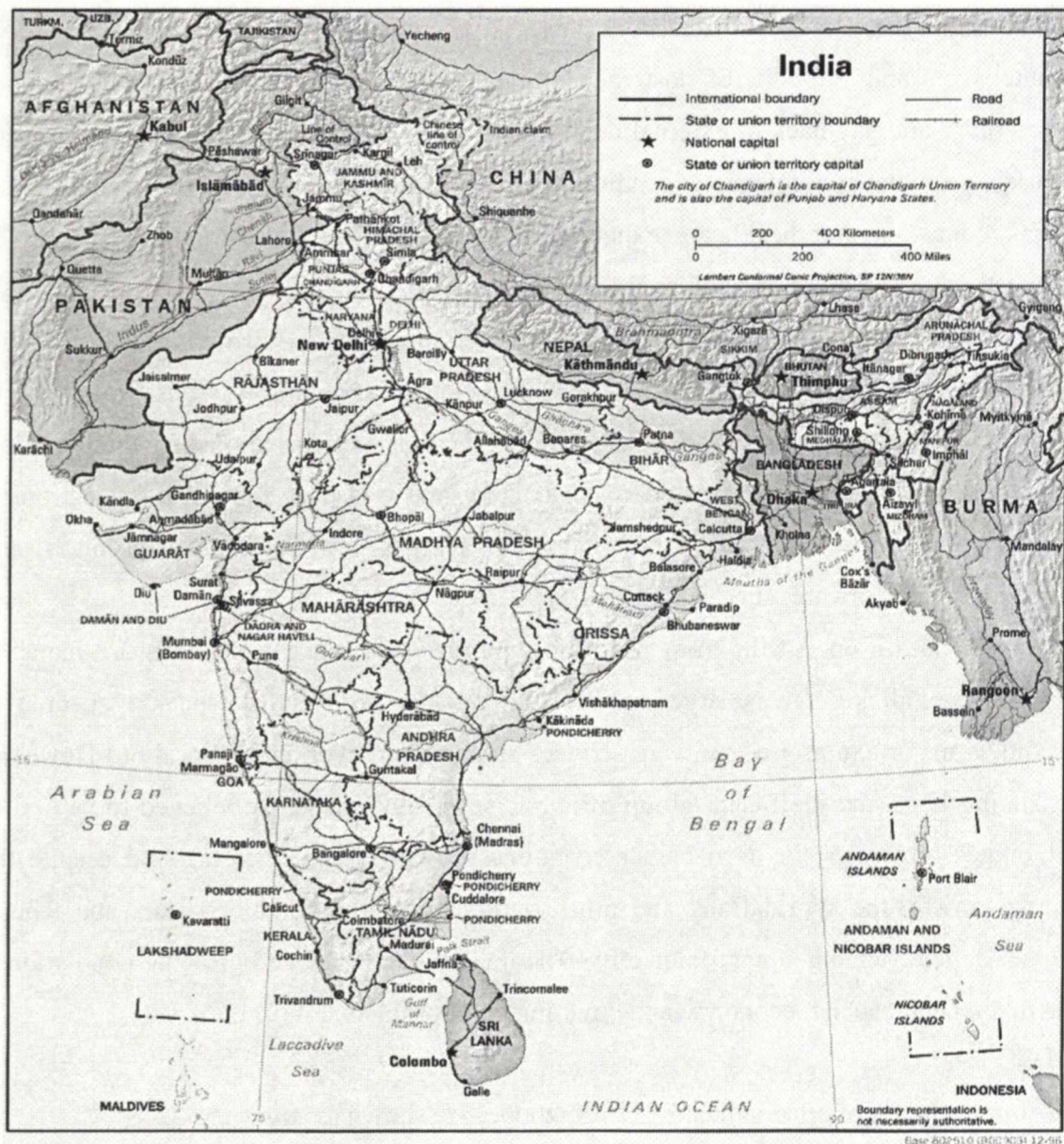
India has made promises to further lower its high tariffs (averaging 20% in 2004, World 66); in general, from 20% to 15% for other than agricultural goods, from 15% to 10% for capital goods; and tariffs of certain IT-goods will be abolished totally. Most important import items are: petroleum, machinery and transport equipments, electronics; and jewellery. Most important export items are: textiles, jewellery, metal products; and electronics and software. (Encarta)

All in all, one of the most promising industries of India is the software industry. India is capitalizing on its large number of well-educated English speaking people to become a major exporter of software services and software workers. (World 66) However, remaining large and inefficient group of public sector enterprises is believed to be one of the biggest obstacles for even higher economic growth rates. (Encarta) And despite the strong growth, the World Bank and others worry about the combined state and federal budget deficit, running at approximately 10% of GDP. The huge and growing population is the fundamental social, economic and environmental problem. (World 66)

Most important economic indicators (2000-2006e) are shown as *Appendix 3*.

3.4 Geography

India is also quite large country in area wise; in total 3,287,590 sq km (Bartleby) - area equal approximately to 10 times that of Finland or one third of the United States. Below you can find a general map of India, showing also New Delhi - the national capital located in the north of the country.



Map 1: General map of India (GlobalSecurity)

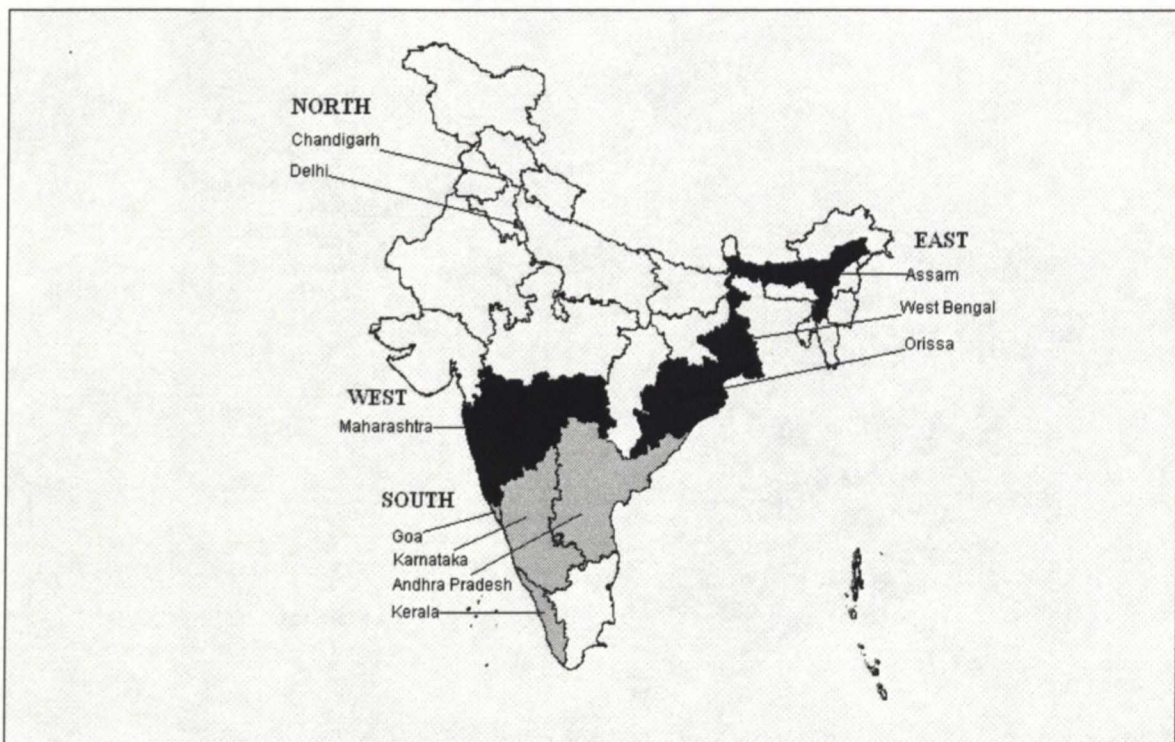
India is divided into 35 administrative divisions; 28 states and 7 union territories. The following map shows those administrative divisions:



Map 2: Administrative divisions of India, 2001 (CensusIndia)

As one can notice India can appear as a rather scattered market area; and although there is an extensive railway and highway networks, transportation of goods – especially goods like wine that might require special transportation conditions (temperature stability, etc.) – might be costly. Thus from a foreign distributor's perspective might be wise move to divide India into geographical segments: north, east, south and west. The same division is also used in *Indian Wine Industry Report* of Bagul and Singh, which provides the statistical data on wine consumption in India – used in later chapters of this study. In *Indian Wine Industry Report* and in this study the segments consist of 10 Indian states, which account as almost all of Indian wine consumption - as mentioned in the limitations of this study. The

segments consist of the following states: *North* – Delhi and Chandigarh; *East* – Assam, Orissa and West Bengal; *South* – Andhra Pradesh, Goa, Karnataka and Kerala; and *West* – Maharashtra. The regions can be found in *Map 3* and their features will be studied in detail in chapter 7: *Predicting Indian Wine Markets*.



Map 3: Regional wine market segments in India; the shadowed areas represent the market region in question.

4 WINE IN INDIA

Wine production and wine consumption on larger scale are relatively recent phenomena in India. Main reasons behind the wine boom that started in the late 1990s and has accelerated during the early 21st century are increased disposable income among the middle and upper-middle classes; and westernization of consumption habits and consumer behaviour.

4.1 History

The history of wine in India goes back to ancient times, although the historical peak era dates to the time of British presence. Although wine tended to be brought into the Indian culture by various waves of conquerors, there are several references to indigenous production of wine in North-western and Western India. For example, ancient Indus Valley civilization, Harappan civilization, indicates indigenous familiarity with wine. (Bagul&Singh)

With the presence of the British from 16th century onward wine began to become more and more familiar throughout the India. Due to cost of shipping of wine to India, the British planted vineyards in Gujarat and in Kashmir. In spite the viticulture was hardly known in India, some of the domestic wines were drinkable. Unfortunately, just as the wine production was picking up, the phylloxera epidemic destroyed all the vines in India – just as it did in Europe. Whereas in Europe the vines were replanted with resistant American rootstocks grafted on to the superior European wines, in India this did not happen. Thus, the imported wine has since the British had an important role in Indian wine markets. (Bagul&Singh)

With the invention of Indian pale ale, beer started to overtake wine consumption in India during 1820s and around 1840-1870 brandy started to be the recognized drink of choice. At the same time, whisky became a stronger challenger in alcohol markets in India, especially with soda becoming widely accessible. When the *Schweppes* -company started

marketing its anti-malaria tonic water in 1860s, gin naturally gained market share as it was the perfect companion for tonic. (Bagul&Singh)

4.2 Current Indian wine markets

Despite the fact that wine is still accounting for only approximately one per cent of the total spirits markets in India, foreign and domestic wine companies are upbeat about the potential the Indian wine markets hold (Kaushik). After all, in markets like India, market share of only one per cent can still be a pretty big business. Currently, the overall sales are around 600 000 cases (app. 7,2 million bottles; 5,4 million litres), of which table wines account for 90% and more expensive vintage wines the remaining 10%. Surprisingly, the domestic wine producers account for approximately 75% of the markets and imported wines for 25% (Bagul&Singh). Even more important is the potential of the markets, as Paola Bassi, export manager of one of the Italy's largest wine companies, *Masi Agricola*, puts it in Kaushik's article: "It's the market of the future." And managing director of the famous *Moet-Hennesy*'s Indian operations, Ashwin Deo tells about the current Indian wine business scenario in the same article: "At the moment, the main focus of the wine companies is not on brand building, but on making the category grow." Interestingly, the efforts of foreign wine makers to increase wine awareness have rubbed off positively also on domestic wine makers – markets for locally-produced wine are growing at a healthy rate of over 20% per year. In fact, the sales of the local players have been so good that many are now planning to expand capacities not only to meet domestic demand, but to cater to the exports as well. (Kaushik)

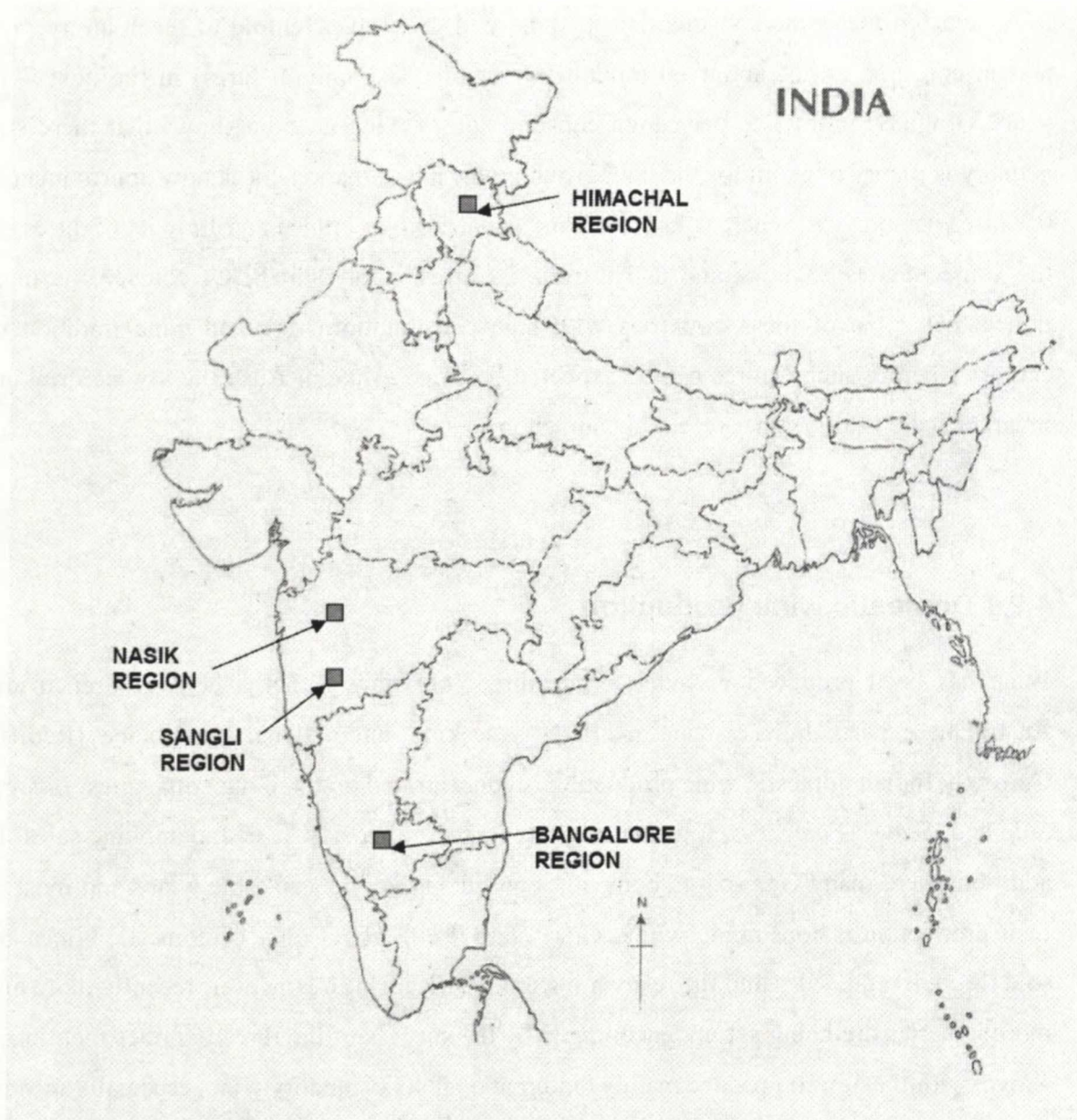
In general, wine consumption in India has increased for the past few years and is still increasing at a rate of over 25% per year. Reasons behind this rapid increase are increasing awareness of wine, changing lifestyles, frequent travels abroad, awareness of international researches that have shown the health benefits of wine; and increasing demand for low alcohol beverages, especially among women and the young. (OnlyPunjab) Indeed,

it is expected that wine consumption in India will grow over tenfold to reach an average annual consumption of about 60 million bottles (app. 45 million litres) in the next 7-10 years. (Bagul&Singh) The per capita consumption of wine in India shows that there still actually is plenty of room for the high growth rates in the markets; it is now approximately 0,1 litres/person/year, whereas in great wine countries like France and Italy its 65 litres, in the United States 25 litres and in Australia 20 litres. (OnlyPunjab) Of course, one must notice that some of these countries with high consumption have had wine tradition of centuries before such figures can be expected, in some – like in Australia – wine drinking in larger scale is also rather recent phenomenon.

4.2.1 Domestic wine production

Wine has been produced in India for centuries, but now with the help of French and Australian experts India's wine industry is seeking international acceptance (Rediff). Currently Indian domestic wine production is concentrated on three big companies: *Indage*, *Sula* and *Grover Vineyards*, together they account for almost 70% of Indian wine sales. In addition, there many Goa -based companies producing very cheap table wines and most of their production is consuming within Goa –state itself. About 60% of domestic wines are sold through retail sales and the rest via institutions (Kaushik). However, recently more and more wineries are being set up, encouraged by the success of the three big ones mentioned above, with the aim to produce mainly “international style” quality wine, especially in state of Maharashtra, where government have supported the industry. Already, there are totally more than 30 domestic wineries operating with over 100 Indian brands. (Bagul&Singh)

There are four major wine producing regions in the Indian sub-continent: *Nasik*, *Sangli*, *Bangalore* and *Himachal* regions. Those regions are shown in the map below:



Map 4: Four main wine production areas of India (Bagul&Singh,2005)

Himachal region. Wine production region in the northern India in the state of Himachal Pradesh, lies at the same latitude as South Californian, Texas and north Florida wine production regions.

Nasik region. Situating in western India in the state of Maharashtra. Extremely good region for growing grapes due to monsoon rains, rich and fertile soil; and cool climate. One of the big Indian wine companies, *Sula vineyards* is located in this region.

Sangli region. Also situating in the state of Maharashtra and grape growing conditions are similar to Nasik region. India's biggest wine company, (*Champagne*) *Indage* is located here.

Bangalore region. Situating in South-western India in the state of Karnataka. Bangalore, being known as the IT capital of India, is also suitable for wine production due to its cool climate. Last one of the big three companies, *Grover vineyards*, is located here.

Although the market situation and the future of Indian domestic wine look bright, there are, however, two obvious barriers to India joining the top rank of wine producing nations:

1. The first one is technical; temperatures do not fall low enough at nights, this affects the colour and composition of the grapes and thus limits the quality and features of wines produced,
2. The second one is economical; it is the 250% tax regime that means that bottle of wine, which is produced for £1,75 is retailed at almost £6,00 and this is unreasonably expensive for most Indians – and expensive for the middle class as well. (Rediff)

The second barrier can be lifted through change in government policy, but the first one is rather permanent problem.

4.2.2 Imported wine

As mentioned, imported wines account for approximately 25% of the total Indian wine market volume. Main issue limiting the consumption of imported wine is the price; due to import duties and state-level taxes the price of a bottle can be very high and the fact that almost all the imported wine (more than 99%) is sold through institutions like hotels and restaurants, which in addition have high mark-ups, is not helping. In fact, recent survey shows that in Mumbai the price of a bottle of French wine is 20 times higher than the actual price it is exported at. (Kaushik) One reason for such a high share of institutional sales is that there have been and still might be state level restrictions on retail sales for imported wine (Chandra,2003) Still, most international wine majors have set up marketing facilities in India within five years time and now *Seagram*, being the first multinational wine company, is setting up its own winery in India. This can be seen as a sign of trust for the Indian wine markets. (IndiaTimes)

French wines are still accounting for majority of imported wine, but shares of wines from Australia and California are making strong progress. Despite the presence of the well-known multinational wine companies; such as *Seagram*, *Pernod Ricard*, *Moet-Hennessy* (country office since 1999), *Veuve Cliquot* (own representation and alliance with *Grover*), *Miguel Torres* (joint venture with *Tharap Group*), *E&J Gallo* (alliance with *Radico Khaitan*) and *BRL Hardy* (joint venture for distribution with *Indage*); the imported wine category is still very fragmented with over 1000 labels from numerous manufacturers on offer – principally to institutions like hotels and restaurants. In 2003 *E&J Gallo* was the market leader of imported wine with 3000 cases; 36 000 bottles sold. (Chandra, 2004)

4.2.3 Development of market shares and regional markets

Table 1: Indian wine markets in 2004, volume and revenue

Volume (Cases)

Category	2004-05
Premium Wines (still)	277550
Sparkling wines	49280
Sub Total	326830
Cheap and fortified wines	271920
TOTAL	598750

Revenue (Rupees, Crore)

Category	2004-05
Premium Wines (still)	133.2
Sparkling wines	37.0
Sub Total	170.2
Cheap and fortified wines	39.16
TOTAL	209.3

(Bagul&Singh)

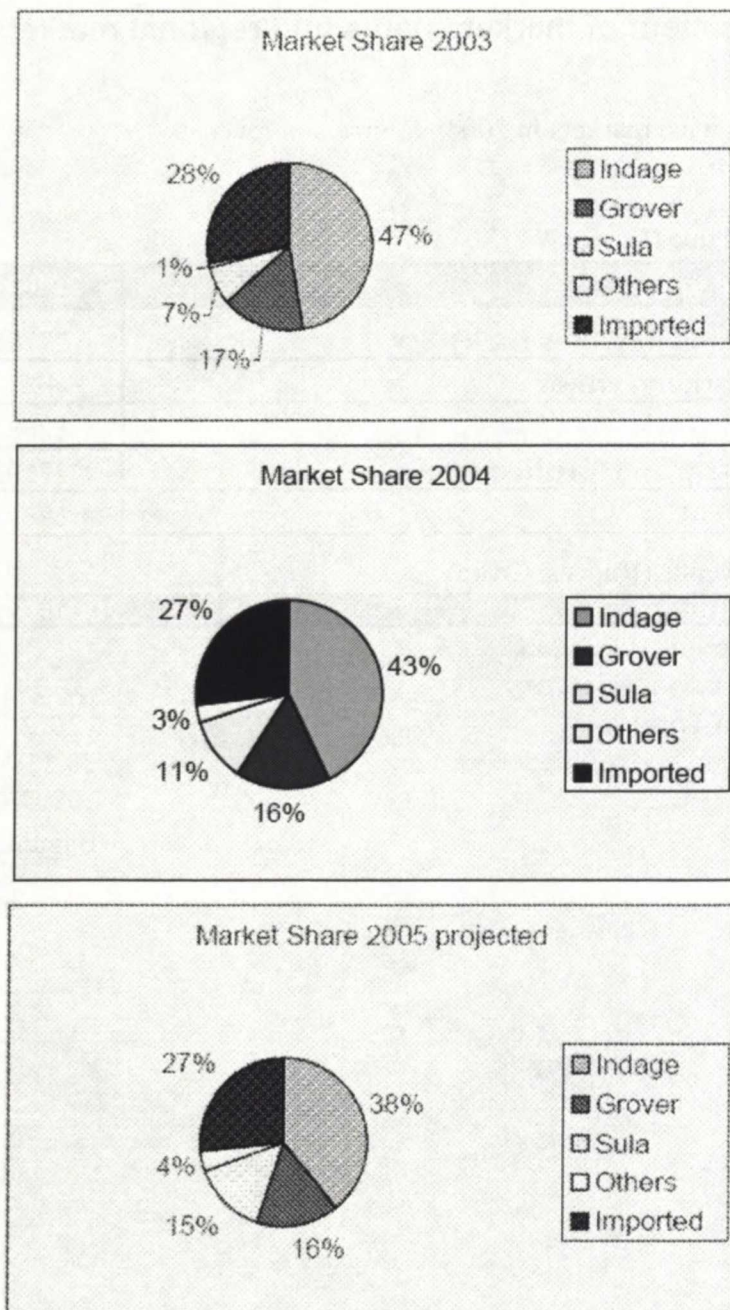


Figure 3: Development of the market shares (2003-2005e) (Bagul&Singh)

Table 2: Regional premium wine markets 2004

Premium wine in 2004		Volume, cases	%	Revenue, Rs. crore	%
NORTH:	Chandigarh and Delhi	86,016	27.5	47	27.8
SOUTH:	Andhra Pradesh, Goa, Karnataka and Kerala	60,720	19.4	31	18.3
WEST:	Maharashtra	147,060	47.0	81	47.9
EAST:	Assam, Orissa and West Bengal	19,320	6.2	10	5.9
TOTAL		313,116	100.00	169	100.0

Source: Calculated from Annexure 5 and 6,
Bagul&Singh

As *Table 2* shows us, Maharashtra state alone accounts for almost half of the total premium wine markets – most consumption comes from Mumbai metropolitan area, followed by the North; where Delhi state and city has the strongest impact on consumption; and the South; where Bangalore city in Karnataka state is behind most of the consumption in that region. These figures point out that wine drinking still remains more of an urban phenomenon (Kaushik).

5 ANALYZING RISK BY PEST - ANALYSIS

I will use the PEST – analysis in this chapter to analyze foreign distributor's risks in operating in Indian macro environment. I will do this by going through each aspect; *political, economic, social and technological*; and analyzing the most common factors related to them.

5.1 Political factors

These are the factors that define the formal and informal rules under which the companies operate in the country, such as government regulations and legal issues. The following are the most important factors of political risk from perspective of foreign distributor. One must also bear in mind that in India many of the following are under influence of national and state laws and regulations.

Trade restrictions and tariffs. In 2001 the government of India removed quantitative restrictions on spirit and wine imports. (IndiaTimes) In addition, in January 2004 customs duties were reduced by 8-12% and the 4% “special additional duty” was eliminated, but duties still remain very high; 150-300% (see *Table 4* for details). This has been partly offset by the government scheme that has been extended to all hotels, restaurants and clubs earning a certain level of foreign exchange. (Chandra) These institutions, which earn the required level of foreign exchange, are entitled to Duty Free Import Licenses. The licence will be equivalent to 5% of their average foreign exchange earnings in the last three years; are they can import any item or goods worth that 5% without any import duty. As the wines and alcohol are subjected to heaviest duties, many choose to import those. This can offer good opportunities for imported wines to get on the shelves of bars and restaurants; and thus create brand awareness and after that possibly launch their brands in retail markets to take advantage of that brand awareness. (Ahuja,2003)

Table 3: Import duty changes in 2004

	Previous	From 10th January 2004
Basic Duty	168%	150%
Additional Duty		
If Price less than US\$10 per case/9 liters	150%	150%
Price above \$10 but less than US\$20	100% or US\$ 40	100% or US\$ 40
Price above \$20 but less than US\$40	50% or \$53.2	50% or \$ 53.2
Price above US\$ 40	25% or \$ 53.2	25% or \$ 53.2
Special Additional Duty	4%	Nil

(Ahuja)

The trend seems to be that the reduction on import duties on wine will continue also in the future, thus this should not constitute a risk. However, one have to also bear in mind that wines imported in bulk and bottled in India attract a lower rate of duty than the finished imported bottles (Ahuja,2002).

Tax policy. Perhaps the most important of the tax policies, in this study, is the Value Added Tax, *VAT* and India's efforts to move to a Central Value Added Tax –regime. The idea behind the "Ideal VAT" has been that it would in its own part unify the tax policies of the states; it will cover all the states and will work the same way in all of them. However, although that State Level VAT has now been introduced, not all states have abolished their own cascading taxes. In addition, different states might be collecting VAT at distinct rates for the same commodity. If each state is to set up its own rates of VAT, companies would have to navigate through 30 state laws and applicable rules. But in contrast, if the "Ideal VAT" - which can be said to be in its initial phase at the moment - will be implemented successfully throughout the India, it could unite India into a large common market. Then companies could truly start to optimize their operations purely on logistics, not on taxes. (IIMM)

Some states have also imposed high *sales taxes* on imported liquor and wine in restaurants and bars. (Mitra) This naturally can reduce the willingness of institutions in such states to sell foreign wine, because if high taxes must be add in top of their own mark-ups the price of the wine might become too high and thus will be unappealing to customers.

Employment laws. In general, there are no particularly harsh employment laws in India from perspective of foreign distributor. However, there might be some state level differences, which are out of this chapter's scope. The cost of labour in India is low, as many outsourcings of foreign company operations to India have shown us, in terms of wine sales employment costs are estimated to the level of 4-5% of sales. (Mitra)

Political stability. This is possibly single most important factor of risk as it affects all the other aspects of political risks and many aspects of economic risk. As the earlier chapter on Indian history pointed out, two political parties have ruled the political scene of India during 1990s and 21st century; the Hindu nationalist party - Bharatiya Janata Party, *BJP* and the *Congress Party*. The support base of BJP mostly consists of India's middle and upper-middle classes, whereas the Congress Party campaigns for creation of employment and reduction of poverty thus appealing to classes of lower income. As the history chapter told, the victory of the Congress Party in 2004 came as a surprise to many – the economy was booming and this was in favour of the BJP. As a consequence of this surprising result India's stock markets experienced the biggest one-day plunge of its history as the investors feared that economic reforms could be slowed or halted due to pressure from the political left. However, when the long line economic reformer was appointed as prime minister, markets recovered. This show how big of an influence a shift in government power relations can have – thus contributing to importance of political risk and political stability. On the other hand, despite the results of the elections the economic reforms are still on their way and the economy is opening to the global trade even further – this in fact, is in favour that the political situation of India is stabilizing, at least what comes to economy. Stabilizing in the sense that no matter which party is in control, the policies and regulations are prescribed according to long-term objectives.

5.2 Economic factors

Economic factors contribute to risk in a way that they affect the purchasing power of potential customers and company's cost of capital, when operating in that particular environment. Other issue affecting the purchasing power of potential customers is state-level economic decisions.

Economic growth. The economy has posted an excellent average annual growth rate of 6.8% since 1994 (World 66), see *Figure 5*. In general the Indian economy is a mixture of traditional agriculture (25% of GDP), handicrafts, modern industries (25% of GDP) and multitude of services (50% of GDP). At the moment, Indian economy is among the fastest growing economies in the world with annual GDP growth rate being 7-8%. (Finpro) However, one could say that India has been economically divided into two "worlds": poor rural villages and rich rapidly developing urban regions. (Encarta) This also illustrates the reality of inequalities in income distribution. There are also huge regional differences in state level. As the wine consumption is more of an urban phenomenon (Kaushik), situation looks rather good from wine industry point of view.

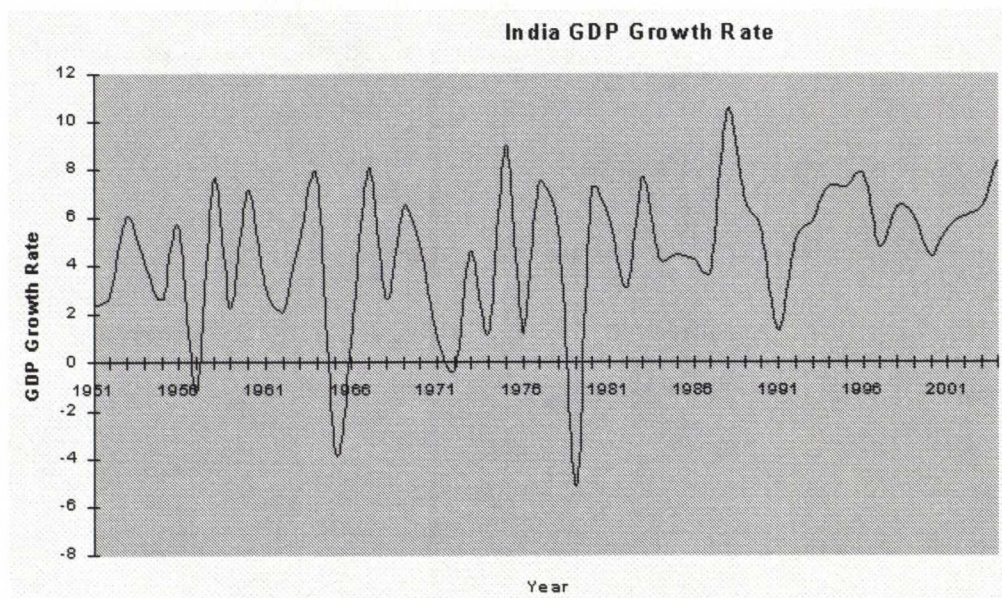


Figure 4: Annual GDP growth rate of India (1951-2004) (EconomyWatch)

The future of the Indian economy also seems bright, at least many economic analysis believe so. The EconomyWatch has made following estimates: India, which is now the fourth largest economy in terms of purchasing power parity, will overtake Japan and become third major economic power within 10 years. By 2025 the Indian economy is projected to be about 60 per cent of the size of the US economy. The transformation into a tri-polar economy will be complete by 2035, with the Indian economy being only a little smaller than the US economy, but larger than that of Western Europe. By 2035, India is likely to be a larger growth driver than the six largest countries in the EU combined, though its impact will be a little over half of that of the US. (EconomyWatch)

In general, the economic growth – as long as economy is growing – should not constitute a risk despite the income distribution inequalities, as the customer segment that is target segment of wine consumption tends to be the ones that are actually “gaining” from these inequalities.

Interest rates. As Table 4 shows us Indian real interest rates have been considerably higher than those of the United States. Although Indian governments have made plans to lower the interest rates, in order to increase investments and thus keep the economic growth on solid basis, there are some reasons that made this quite difficult. One of the biggest reasons is the high public debt of India and structure of this debt. The policy being pursued with respect to accumulation of foreign exchange reserves is also a reason for this. (Jha)

Table 4: Development of Indian real interest rate vs. that of US (1992-1999)

	Indian Real Interest Rate (% per annum)	US real Interest Rate (% per annum)	Indian real interest – US real interest
1992	7.05	0.72	6.33
1993	8.77	0.27	8.50
1994	4.21	2.05	2.16
1995	6.12	3.13	2.99
1996	10.07	2.48	7.59
1997	8.59	3.23	5.35
1998	6.63	3.79	2.84
1999	9.00	3.00	6.00

All data are taken from various issues of *IMF Financial Statistics*. (Jha)

The downward trend in interest rates continued in 2004-05, with bank rate standing at 6% as on Dec 10, 2004. (EconomyWatch)

Although the interest rate situation seems quite stable at the moment, the high public debt of India restricts the government actions and thus the lowering of the interest rates might be a lengthy and hard task – thus constituting a slight economic risk.

Exchange rates. Because of the weakening of the US dollar for the last two years, (caused mainly by widening US deficits), Indian Rupee has steadily appreciated vis-à-vis US dollar. Though, this trend saw a brief reversal during may-august 2004. The latest Rs/\$ Exchange rate (March 2005) stood close to 44. Despite strengthening nominally against US \$, Rupee depreciated against other major non-dollar currencies. Thus, the Real Effective Exchange rate of the Rupee depreciated and this trend continued until end 2004. (EconomyWatch)

Table 5: Annual average exchange rate of Indian Rupee / USD

1998-99	42.0706
1999-00	43.3327
2000-01	45.6844
2001-02	47.6919
2002-03	48.3953
2003-04	45.9516

Reserve Bank of India

A strong balance-of-payments, *BOP* position in recent years has resulted in a steady accumulation of foreign exchange reserves. The capital inflows, current account surplus and the valuation gains arising from appreciation of the major non-US dollar global currencies against US dollar contributed to a rise in foreign exchange reserves. (EconomyWatch)

As the fluctuation of the Indian Rupee has been moderate during the recent years, exchange rates should not cause a particular risk, when operating in India.

Inflation rate. As the earlier chapter on Indian economy points out: India has been able to keep the inflation moderate for over 10 years - with the exception of fiscal year 1998-1999, when consumer prices rose 13,2% - and it has been at level of 4%. For the year 2005, the expected inflation was approximately 4,3%. (Daily Times)

Inflation also seems to be under control in India, but if the high economic growth rates continue, the government needs to pay extra attention to meet the annual target inflation of 4,0-4,5%. If the economic growth rates accelerate, inflation might be a moderate economic risk.

5.3 Social factors

Social factors – demographic and cultural aspects - affect customer needs and size of the potential markets. What comes to wine industry in India, the size of the potential markets is a sum of two issues: *level of disposable income* and *attitudes toward wine*. As mentioned in earlier chapter, in the main (90% of the population) religious group in India, in Hinduism alcohol and wine are tolerated, but attitudes have not been very positive about them in the past; and Islam (10% of the population) forbids the alcohol. However, the attitudes are changing in India and drinking of wine and other alcoholic beverages is now socially accepted (Ahuja,2002).

Health consciousness. In general, Indians are very health conscious. Increasing awareness of wine as a separate drink from spirits and awareness of many studies that have shown positive health effects of wine - especially red wine - are in favour of wine consumption. (Ajuha,2002) The increasing demand for low (compared to spirits) alcohol beverages, especially by women and young (the 25-45 years age group) – the market segments where the growth is highest - has also increased wine markets. (Kaushik)

Age distribution. Of the population of over a billion 63% belong to the age group 15-64 years (Bartleby); and as mentioned above the age group of 25-45 years belong to the target segment. Total median age is also low - 24,1 years. At the moment, the annual population growth is about 1,4% (Bartleby).

The age distribution itself won't constitute any risk, as there are plenty of people belonging to group of potential customers (in age terms), unfortunately the economical requirements will narrow down the amount of potential customers to just few per cent of the total population.

Other aspects of social factors, such as *career attitudes* and *emphasis on safety*, are not actually relevant in this study. The social factors themselves do not seem to cause risk; the attitudes of Indians are changing toward more wine friendly and with increased awareness of wine the Indian wine markets should continue to grow. One should, however, remember the differences between religious groups, in order not to offend anyone or their beliefs, when operating in culturally and ethnically diverse India.

5.4 Technological factors

Technological factors affect various business decisions and operations; among other things they can reduce operation costs.

As this study is conducted from perspective of foreign wine *distributor*, the aspects of technological factors are not actually relevant; lack of proper warehousing possibilities could be one of these. However, in general terms these factors won't cause any direct risks; features of domestic producers of wine being analyzed, when studying the competition in the next chapter.

6 ANALYZING COMPETITION BY PORTER'S FIVE COMPETITIVE FORCES

In this chapter I will analyze the competitiveness of the Indian wine markets and industry through the Porter's Five Competitive Forces- model, which was introduced in the earlier chapter. I will analyze each of the five aspects through *Porter's questions on the aspect*.

6.1 Customer –aspect

Customers are a moderate competitive force in the industry according to Porter. Powerful customers can reduce the profitability by 1) bargaining lower prices, 2) demanding higher quality for the same price and 3) racing the competing suppliers against each other. On the other hand, weak customers are forced to deal with the suppliers' rules. Here, the concept of customer needs to be specified. Customers can be divided into two groups: 1) *retail sector* and 2) *institutions*, for example; hotels, restaurants, bars, clubs and embassies. The fact that 99% of the imported wine is sold through institutions in India (Kaushik), will determine the customers of a foreign distributor. Thus, I will concentrate on institutional sales side.

Are there only few large customers or many small ones? The amount of customers in the market naturally reflects to their negotiation power. In the case of Indian wine markets, there are a large amount of customers – some smaller, some larger. The big hotel chains are the most powerful customers in India, their selling volumes are high in Indian standards and thus they also have considerable amount of negotiation power. Most of the headquarters of these chains are located in New Delhi, close to the government; and it is not a surprise that many of the foreign and domestic sales offices of the wine companies are located either in Delhi - close to those headquarters or in Mumbai – where most of the wine is consumed in India and being one of the main ports and the business capital of India, lot of business is conducted.

After the hotels, individual restaurants, bars, clubs and embassies are the most important customer group – but generally as individual units, they do not have as much negotiation power. But one have to bear in mind that as mentioned earlier, at the moment, the business scenario of wine industry in India is all about increasing the wine markets as a whole. This being the case, each – especially new – customer can be considered very important, as the wider the customer base no matter how small the amount the wider the wine awareness will spread.

How different are the products offered by companies in the industry? At the moment almost the whole worldwide wine scale; perhaps with limited varieties, is present in India. At the retail sector cheap Indian wines dominate as the price of Rs. 500/bottle remains a formidable bar, volumes dropping sharply after that (Chandra,2004). The scenario of the imported wines: French wines still account for major share of imported wine; however, the aromatic New World wines especially from Australia and California are gaining the markets. One of the reasons for market growth of the New World wines might be that they are more suitable for the Indian cuisine (Mitra), another aspect of the wines of the New World: “The success of the New World wines is due to aggressive commercial strategy and that they are better responding to modern customers’ expectations” says Mr. Renaud Gaillard, the vice president of the French association of wine and spirit exporters, FEVS, in a Finnish business journal (Seuguenot, Kauppalehti 2005).

Do customers buy the products from a single supplier? This, of course, is a very customer specific question. There was no data found on this subject, but taken in consideration the following; there answer would probably be yes. There are various suppliers of wine in Indian markets; foreign wine companies, domestic importers and distributors; and domestic wine producers – so a customer would not be forced to buy from a single source (notice that some Indian states, such as Karnataka, have set up state owned monopolies, where liquor is first sold to them and their then sell to customers). But once you think about it, there might considerable advantages for the customer to buy from a

single supplier: customer's negotiation power will increase with the volume of sales and better conditions of the deal could be negotiated. Although increasing customers negotiating position, many of the suppliers will be willing to be the single supplier as their sales would increase. That is why this can be an important competitive factor in the, still, limited Indian wine markets; customers can race the competing suppliers against each other and take advantage of this in form of better conditions of the deal.

Can the customers backward-integrate, acquire a supplier? Yes and as mentioned earlier, the institutions are now handed Duty Free Import Licences on basis of their foreign exchange earnings. Many of these institutions do import wine and other alcohol with that license, as their duties are among the highest. But, it is also allowed and common that an importer ships the goods to certain "duty free" warehouses from where they can be sold to these license holding institutions without any import duties (or then pay the duties and sell them to other liquor license holders).

Can suppliers forward-integrate, acquire customers' operations? Without considerable amounts of money to invest; no. Unless the business is a small individual unit, in what case I do not see any point from supplier's perspective of acquiring such a business. The biggest customers are the well established hotel chains with sound financial background, thus in order to acquire such a business, one will need lot of capital. From foreign distributor's perspective acquiring a customer's operations would be a very costly way to get hold of a distribution channel.

6.2 Competitors – aspect

Competition between companies within the industry is a powerful force. Competitors can lower the industry profitability by cutting prices or offering better quality for the same price. When competition is moderate, companies' own activities are the main actors to its profitability. When the competition is very intensive, some companies might even operate unprofitably in order to drive the competitors out of business.

How different are the products offered by companies in the industry? As mentioned in the *Customer- aspect* chapter, (at least almost) the whole scale of wine is offered in India at the moment. The more aware of the wine the Indian people are the more important will be the quality and regional features of wine, but as mentioned at the moment the biggest challenge is to increase the wine markets in whole. Liquor, especially beer, can be considered as challenging products for wine. This will be dealt in the chapter of *Substitutive products – aspect*.

Are the companies in the industry of equal size? At the moment, there are the three big Indian wine companies (Indage, Grover, Sula) that dominates the Indian wine markets with combined market shares of about 70%. In addition to that there are two big Indian wine importers, which cover most of the “star” hotels; *Sansula* – Mumbai; and *Brindco* – New Delhi (Chandra,2003). Then there is increasing number of growing domestic wine producers and smaller Indian importers. As mentioned earlier, there is also group of big multinational wine companies present in India (some having alliances with the Indian companies) and a number of smaller foreign exporters/importers.

As the current wine business scenario above points out, there are companies of varying sizes operating in the Indian wine markets. Due to presence of the big domestic and multinational wine companies, smaller companies will often have to settle for niche market sectors, such as individual institutions.

How big are the fixed and operating costs within the industry? For Indian wine producers: The vineyards require years of planned fostering and investments before they will produce anything, after that it still might require many years until the desired quality is met. The machinery used by the wineries is also quite expensive. On the other hand, the Indian producers benefit from the relatively cheap land available in the country and lower labour costs. For wine business in general in India: Although the personnel costs are low (app. 4% of sales), the high sales promotion costs (app.20-25% of sales) will affect the profitability (Mitra). Main reason behind these high sales promotion costs is the need to increase awareness of wine among the Indian people and as media advertising is not permitted for any alcoholic beverage, samplings and other type of direct promotions are probably the best means of marketing; but they are also very costly means of marketing (Chandra,2003).

In some cases external help might reduce the operating costs or need of investments of some of the players in the field. One such case is the *Sopexa*, French marketing and promotion board that has set up an office in India with a plan to increase the imports of French wines to India by 50% within next few years (Bagul&Singh). These sort of efforts naturally will be of great assistance to importers of French wines.

What's the growth potential of the industry? As discussed earlier, the growth potential of Indian wine markets and industry is huge. Consumption of wine is expected to grow tenfold to reach annual consumption of 60 million bottles within the next 10 years (Bagul&Singh). The growth potential of Indian wine markets will be studied in more detail in chapter 7, *PREDICTING INDIAN WINE MARKETS*.

6.3 Suppliers – aspect

According to Porter suppliers are a moderate force in the industry. Suppliers' importance to the industry is related to the market situation; whether they are price takers or settlers.

As in this study the perspective is that of a foreign distributor operating in India, acting as a supplier itself; the suppliers – aspect is not actually relevant in this study. After all, if the foreign distributor is wine producer itself, it has no suppliers as it is selling its own production. If the distributor is operating as export-import company, we can assume that the company will take advantage of global open trade; buying its supplies from where it is most cost-effective.

6.4 Substitutive products – aspect

A substitutive product has same functionality as the product being compared, but is not identical as the competing products. Substitutive products are a weak force in the industry, limiting the selling prices companies can charge for their products. If this assumed limit is exceeded, customers will switch to the substitutive products. In case of wine the substitutive products could be beer, liquor or non-alcoholic beverages such as sodas and mineral waters. Perhaps beer and flavoured alcoholic beverages, *FABs* with lower alcohol contents could be more accurately labelled as substitutive products for wine than the hard liquor. Although a weak force in competition, substitutive products are very important, when studying the wine markets of India; as mentioned earlier, at the moment wine accounts for only few per cent of the total alcoholic beverage markets in India.

The price, quality and features of substitutive products. The price of domestically produced beer and *FABs* are pretty low, thus appealing especially to younger generations. The demand for low alcohol content beverages is also increasing among women and young (25-45 years old). (Euromonitor) In favour of wine is its use with meals and as a part of dining (especially fine-dining).

6.5 New entrants – aspect

New entrants are potential competitors. New entrants are a weak force in the industry. The threat of new entrants to the industry's competitiveness is related to their entry to the market and to the greater competition. When entering the market, new entrants often try to gain market share by lowering the prices and offering innovative products, features and benefits. Most of the questions dealt with in the "Competitors aspect"- chapter apply to the new entrants- aspect as well and I will thus deal only with the questions, which have something new to offer to the analysis of the competitiveness.

How big of a role do the economies of scale play in the industry? Wine production in India: In the wine industry I would say that economies of scale do bring a lot of benefits, but for a new entrant more significant will be the "economies of time". One must take care of and invest to the vineyards for years before there will be any potential of profits. However, with government subsidies and increasing markets there are a large number of new operating or starting domestic Indian wine companies (Bagul&Sameer). Wine business in India: As mentioned earlier, the marketing and sales promotion costs are quite high in India; the greater the volume marketed under these costs the smaller the per-unit costs will be, thus creating economies of scale.

What is the effect of the government regulations on new entrants? As mentioned above, government subsidies have encouraged new Indian wineries to start their operations. From foreign distributors perspective there are no special government regulations for new entrants.

How ready are the existing competitors to defend their market position? The industry is profitable and growing; some would say booming; thus encouraging new entrants, but it is also a reason why the existing companies will defend their market position. I believe the main means would be the existing connections to distribution channels – blocking new entrants' access to them and already established own brands. As

the Indian wine markets have been quite nominal in the past and the increasing growth rates have been experienced only during the recent decade, there have been many players in the field who are now able take advantage of their position as “first in the field”. They have established distribution channels, warehousing facilities and probably long-term and close business relations with the major customers. Thus the new entrants will have to have considerable budgets and long-term plans in order to establish a lasting and eventually profitable presence in India (Chandra,2003).

7 PREDICTING INDIAN WINE MARKETS

After dealing with the risks and competition in Indian wine markets, it is time to study the growth potential of Indian wine markets. In this chapter the purpose is to find out, if there are any existing patterns through which the regional wine consumption in India could be predicted and explained; and to estimate the growth potential of Indian wine markets. If this kind of patterns and variables causing the patterns can be found, they would be of great help to foreign distributors and to all wine businesses in India, as these patterns could uncover some underlying potential wine consuming regions - new markets. In order to find these patterns, I will use regression analysis. The goal of regression analysis is to determine the values of parameters for a function that cause the function to best fit a set of data observation that one provides (Nlreg). I will first study the Indian wine markets through regional analysis with help of a geographical information system (GIS) –tool by combining regional data; I will then continue by comparing statistical data in order to find statistical evidence for my *hypothesis*; to be presented in the *Regional analysis* –chapter (7.1).

Tables providing data for the following maps, calculations and analysis are provided as *Appendices*.

7.1 Regional analysis

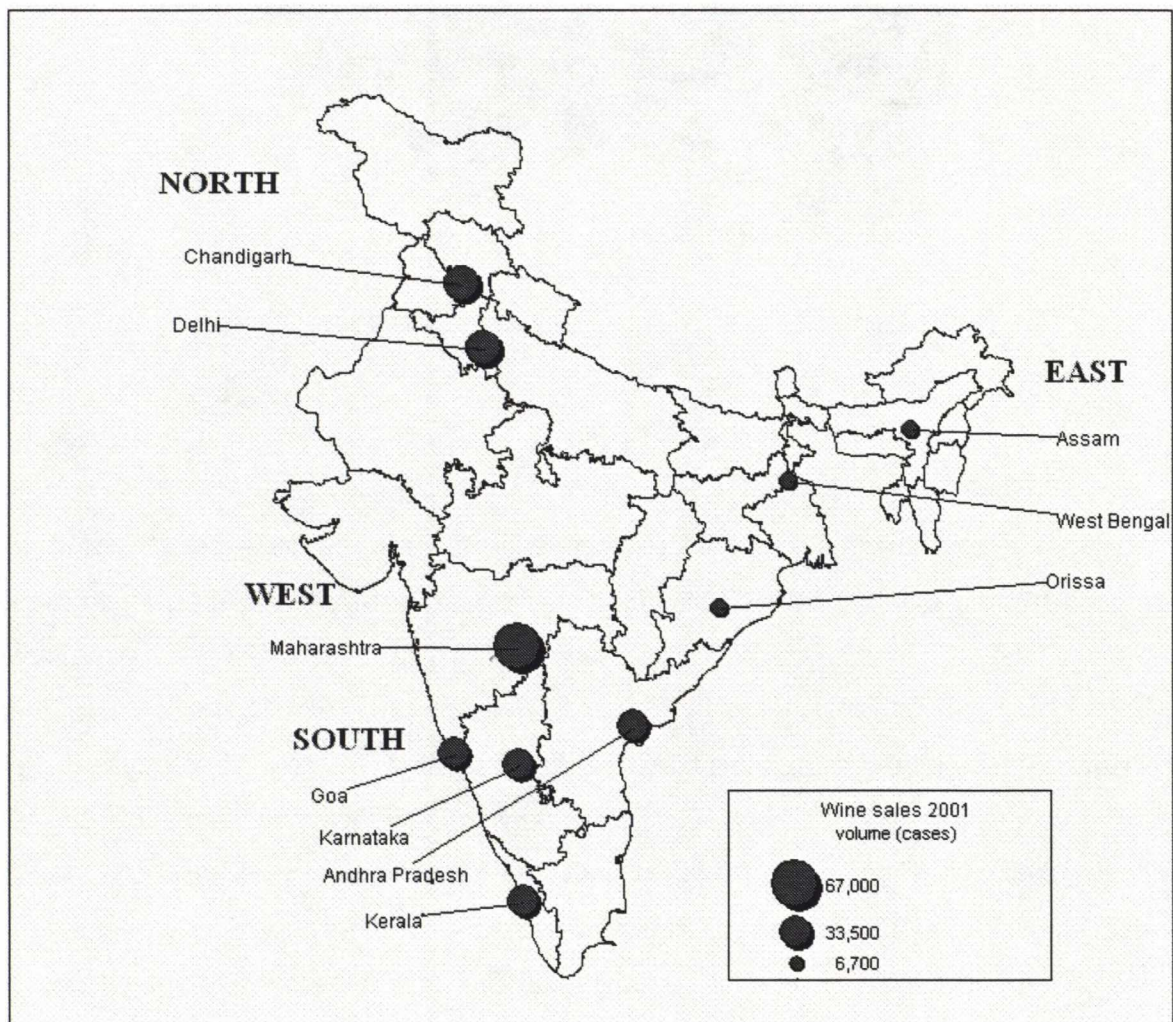
As mentioned earlier, wine consumption is an urban phenomenon in India; much due to higher disposable incomes, more open attitudes to wine and general awareness of wine in the urban areas.

In the case of wine consumption in India the parameters for the regression analysis are: per capita *Net State Domestic Product*, NSDP – which is assumed to best demonstrate the disposable income; and urban population – which in turn will emphasize the urban nature of wine consumption phenomenon in India.

Hypothesis

the higher the per capita income and the higher the amount of urban population; the higher the wine consumption will be in that region.

I will first introduce the current situation of wine consumption and regional segments in India. I will then introduce both of the variables individually and then combined; in geographical form and in comparison with the wine market data. If equal kinds of patterns are noticed, I will study them in more detail (in *Statistical analysis* – chapter) through regression analysis; based on those observations. Values of the variables are from 2001, as the latest census made in India is that of 2001.



Map 5: Wine consumption in India 2001, volume (cases)

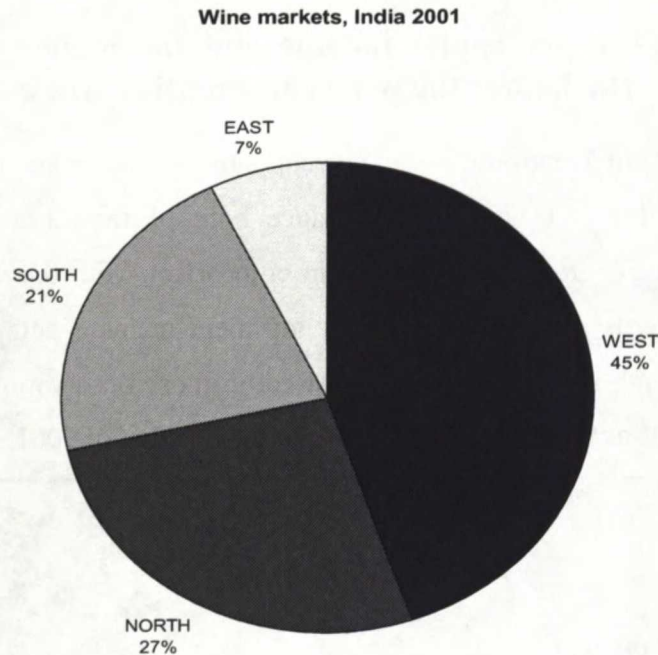
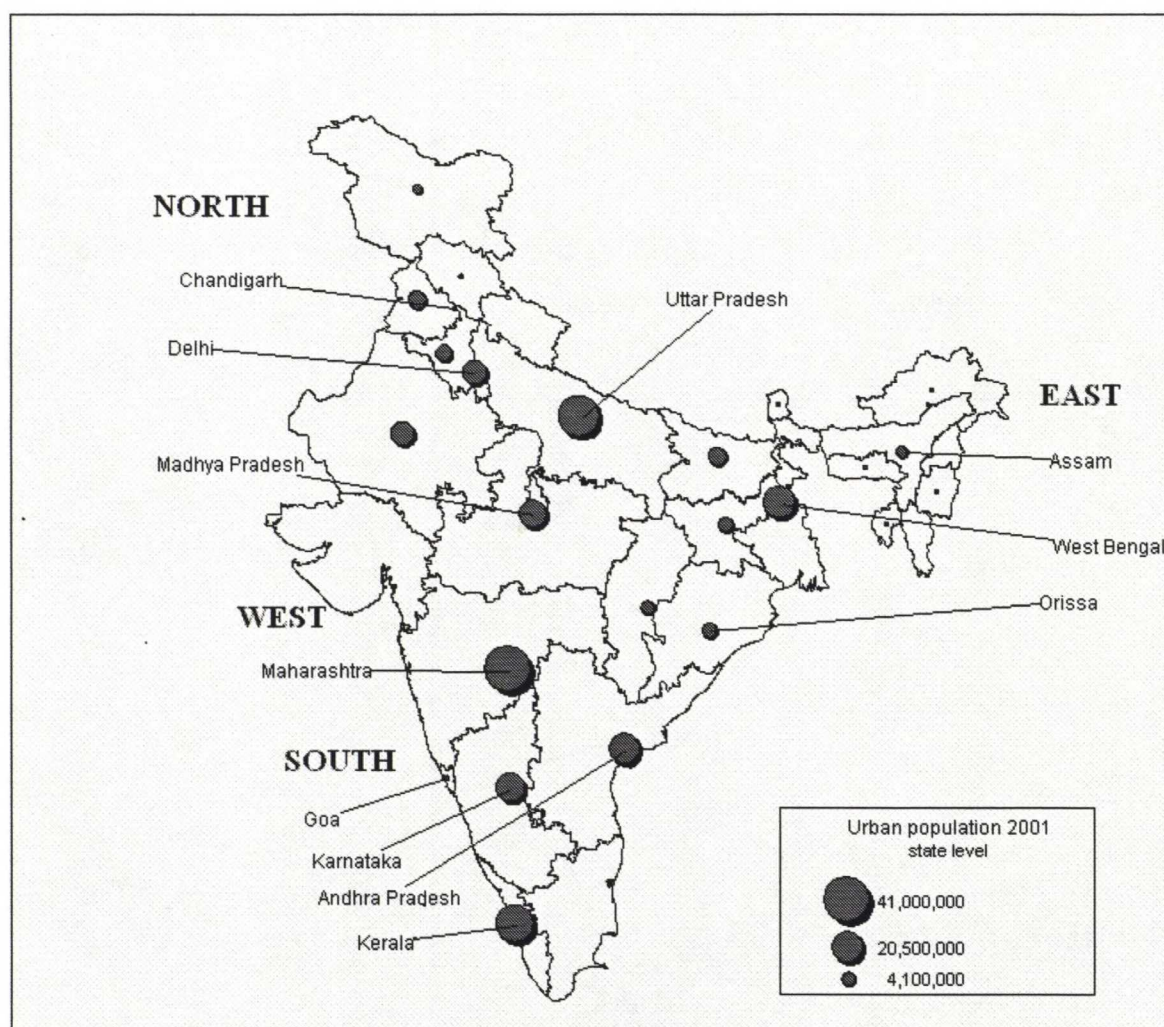


Figure 5: Regional wine consumption, India 2001 (volume)

As the *Map 5* and *Figure 5* point out, the West had (and still has) the largest share of wine consumption in India by value and by volume. What is interesting is that the region West consists of only one state; Maharashtra. As later maps will illustrate, it's a state with large urban population and above average per capita income – this would seem to support the hypothesis. The second largest market area; North consists of two small areas: Chandigarh and the capital area of Delhi. As mentioned, these are two small union territories (although Chandigarh is both, the capital of states of Haryana and Punjab; and a separate union territory itself) by area and by population, but per capita income is very high in both. The South region is also rather consistent area; scoring middle or higher-middle status on urban population and per capita income. What comes to the East region, it is not at all that homogenous; the areas are among middle or high classes in urban population, but among middle or low in per capita income. Above features would also seem to support the

hypothesis; the features are dealt with in the following maps (states with incomplete data and states where alcohol is forbidden are excluded from analysis).

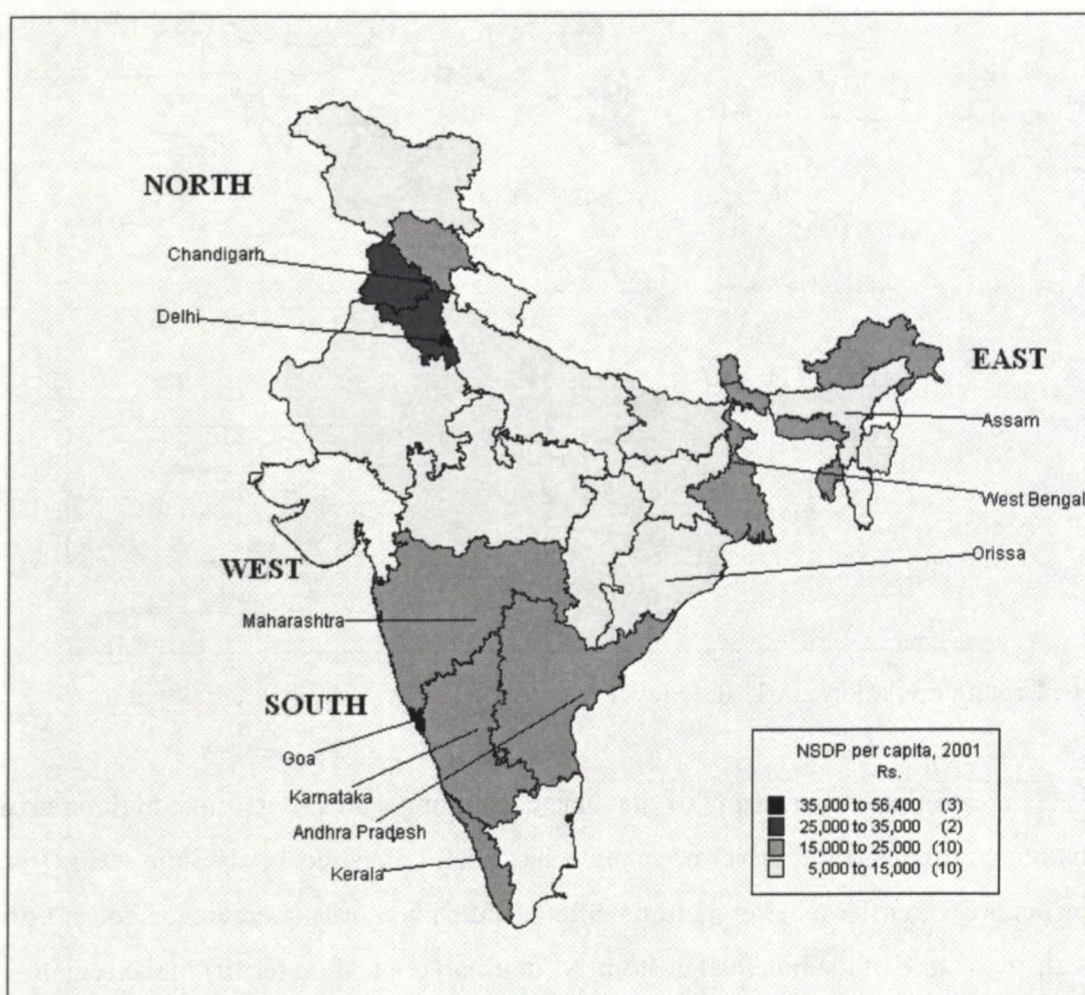


Map 6: Urban population 2001, state level

As mentioned earlier, many of the wine consuming states score quite high on urban population. In this map the urban population has been compared in absolute terms (total amount) in order to offer a better picture – after all, the plain urban percentage doesn't give us a realistic picture of the potential customers (in urban population terms) in the region.

What we should notice here that in addition to the wine consuming states, there are some “non-wine” states on top of the list as well. For example, Uttar Pradesh (in the north, next to Delhi; top class) and Madhya Pradesh (north of Maharashtra, the second class). Uttar Pradesh and Madhya Pradesh are both very populous states (respectively, some 166 and 60 millions) and thus although the urban share of population is not that high (21% and 27%), the total amount of urban population is vast and that is why they score so high on this variable.

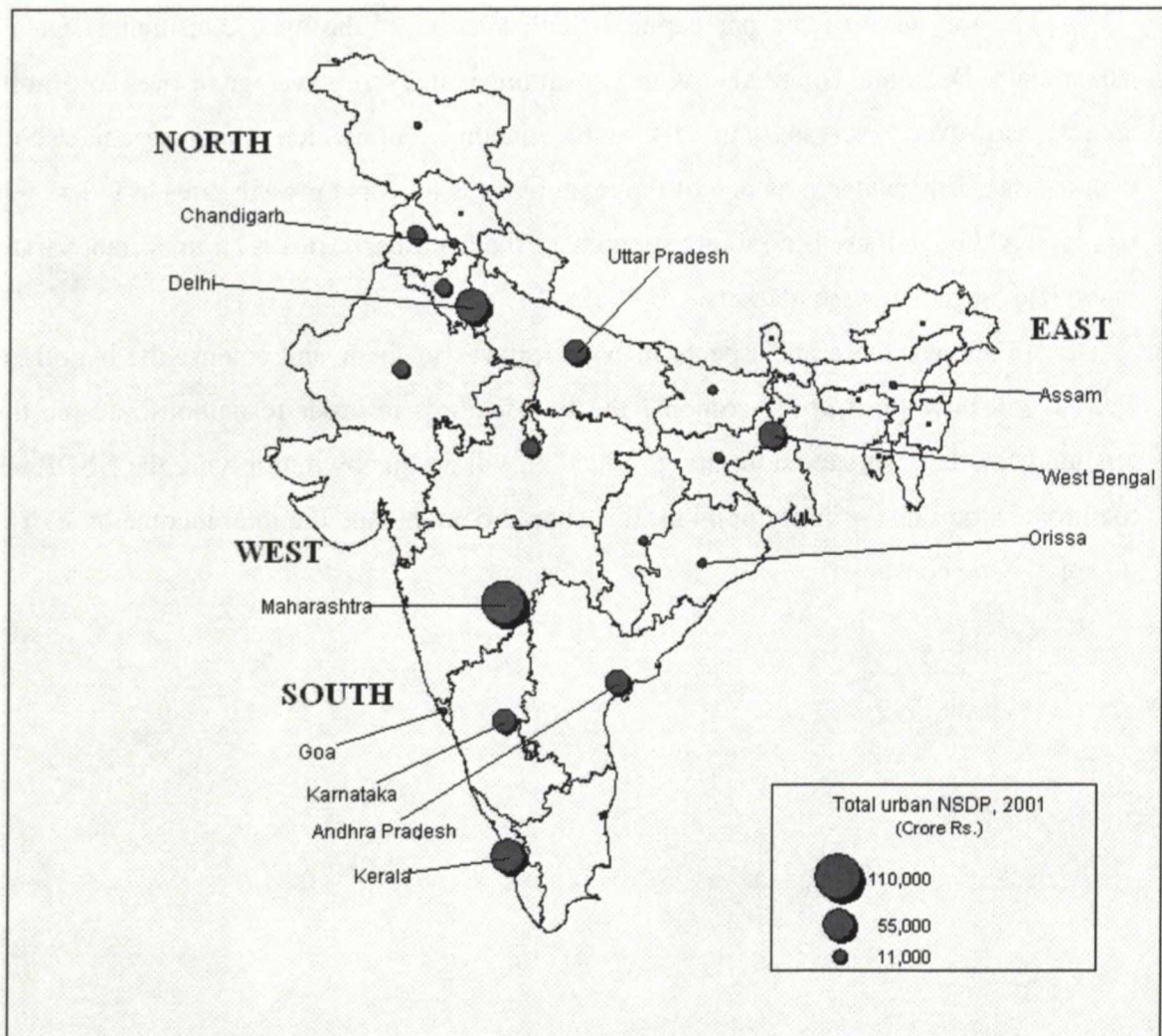
Although there are some deviations from the hypothesis, the evidences from this variable would seem to support the hypothesis.



Map 7: Net State Domestic Product per capita 2001, state level

The top class of the per capita NSDP consists of the wine consuming states of Chandigarh, Delhi and Goa. Other wine consuming states score average or even low on this aspect. However, increases in disposable income, of which this variable should demonstrate, is considered as one of the main reasons for rapid growth rates in Indian wine markets. Although there is no direct support for the hypothesis, this is an important variable in explaining Indian wine markets.

As shown, there are aspects in both features in favor and against the hypothesis. Thus I will now (in *Map 8*) combine the two features in order to demonstrate the total amount of “urban net state domestic product”. I will do this by multiplying the NSDP with the urbanization rate – in my opinion, this should demonstrate the total income base of the potential wine consumers.



Map 8: Total urban Net State Domestic Product, state level (2001)

When the two features are combined, the top wine consuming state Maharashtra takes the lead, followed by two other wine consuming states of Delhi and Kerala. Then comes other wine consuming states; and Uttar Pradesh. As mentioned earlier, Uttar Pradesh's total population is so huge and the score on this might thus be misleading. Many of these observations are actually supporting the hypothesis and thus I will study the wine consuming regions in more detail by statistical comparison in the next chapter.

7.2 Statistical analysis

In this chapter the focus is on finding possible patterns between wine sales and features mentioned above (NSDP – or gross state domestic product - and urban population). Due to fact that urbanization percentage is quite a stable variable, in other words the changes in it are slow and take many years, and that population of India is studied officially quite rarely, the official census is performed once every ten years (last two are from 1991 and 2001), I will concentrate on the changes in Gross State Domestic Product, GSDP and will compare the regional wine sales with regional GSDP. Due to incomplete data on wine sales (data covers years 1997, 2001-2004) I had to estimate annual average growth rates for the years 1998-2001, this of course diminishes the accuracy of this comparison, but it still gives an approximate picture of market growth during those years; otherwise the data would have covered only 2-3 years, so I had no choice. Those estimated annual average growth rates are high, but as one can see from *Appendix 5* the shift from wine sales figures of 1997 to 2001 is significant; so although the estimates would not be that accurate they at least give a fair idea of the growth levels.

I will first study each region separately and then in more general terms. Due to fact that wine sales were provided as region, not state, specific – I have also calculated an average GSDP growth rate for a region along with that of separate states. After these growth rate comparisons, I will make statistical regression analysis of whole India on wine sales and selected variables.

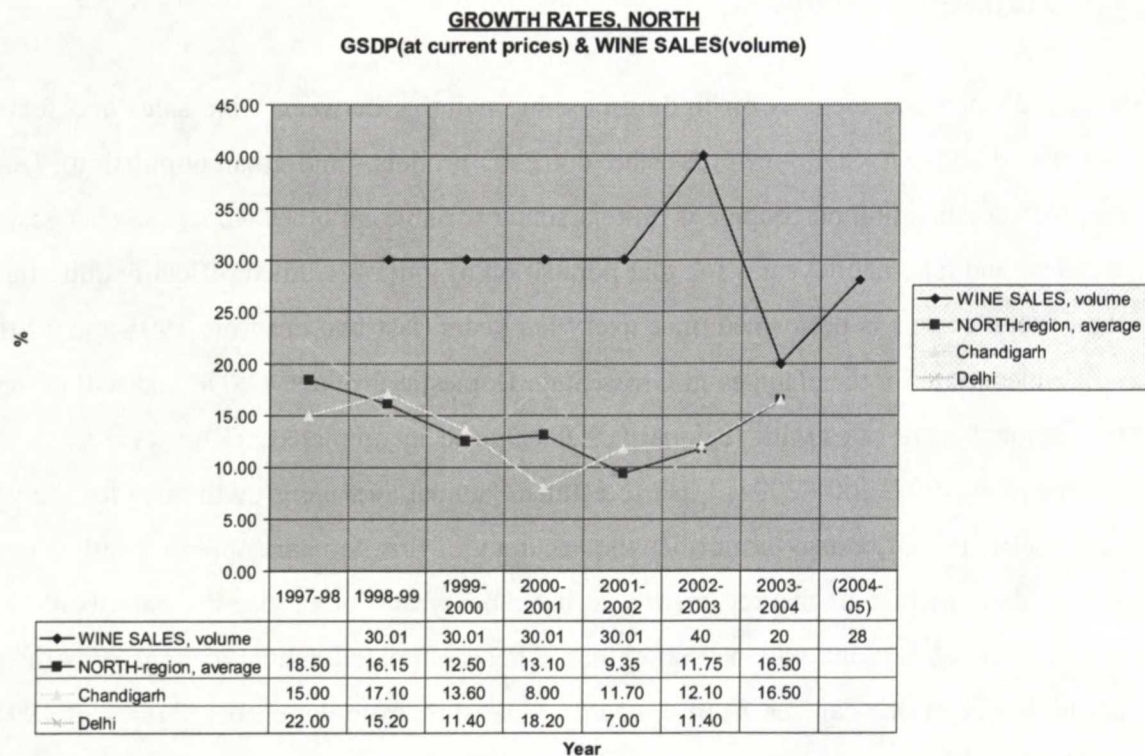


Figure 6: GSDP and wine sales growth rates, NORTH (1997-2004)

As shown in *Figure 6*, the average GSDP growth rate for the North region has been diminishing during 1997-2001, although the economy was still growing the whole time. During the same period the wine sales have been growing rapidly (*Appendix 5* shows that sales have three folded during that period). In 2002 the average GSDP growth rate accelerated and so did the wine sales, but in the following year as the GSDP rate continued to accelerate, the wine sales growth rate was cut in half.

Although both wine sales and GSDP have been growing during the period of observations, there doesn't seem to be any connection between the growth paces of the two.

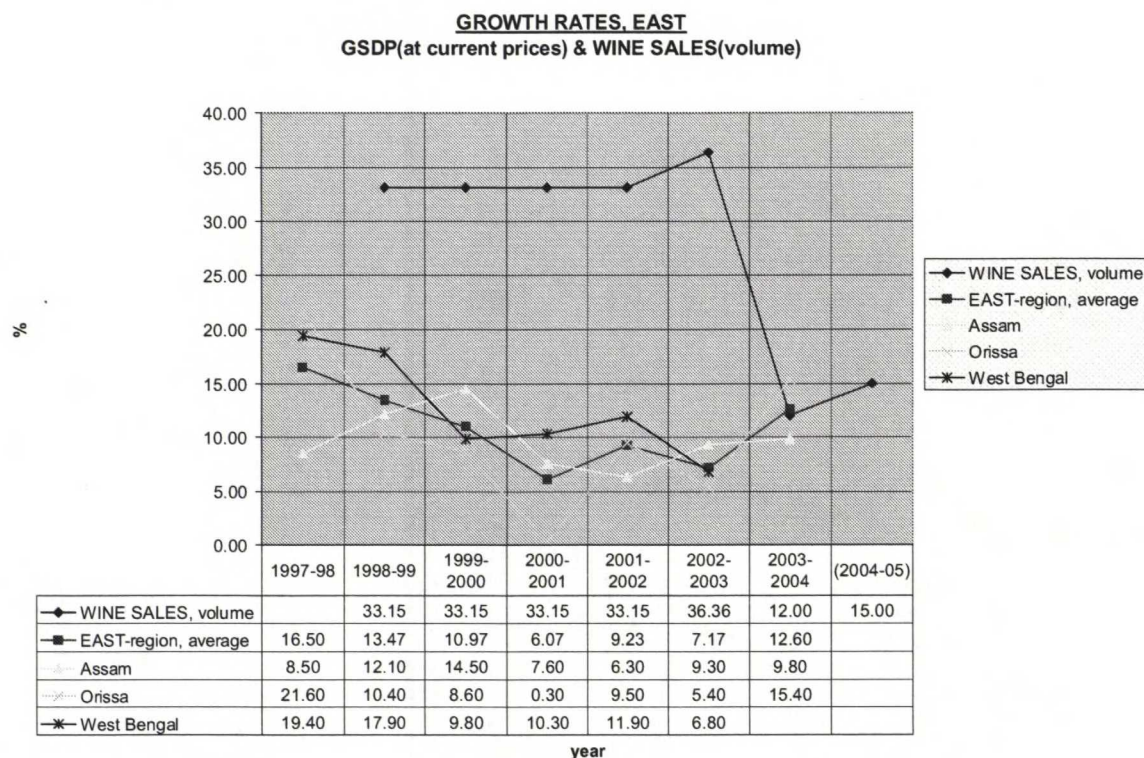


Figure 7: GSDP and wine sales growth rates, EAST (1997-2004)

The *Figure 7* shows that the economy of the East region has been growing during the whole period of observations and so has the wine sales, but the region's average GSDP growth rate was decreasing during 1997-2000 and after that started to accelerate again moderately. However, when the average GSDP growth rate started to rise 2002-2003, the wine sales growth declined sharply in 2003 (still continuing to grow at the rate of 12%).

In this case there also doesn't seem to be connection between the growth rates of the two variables.

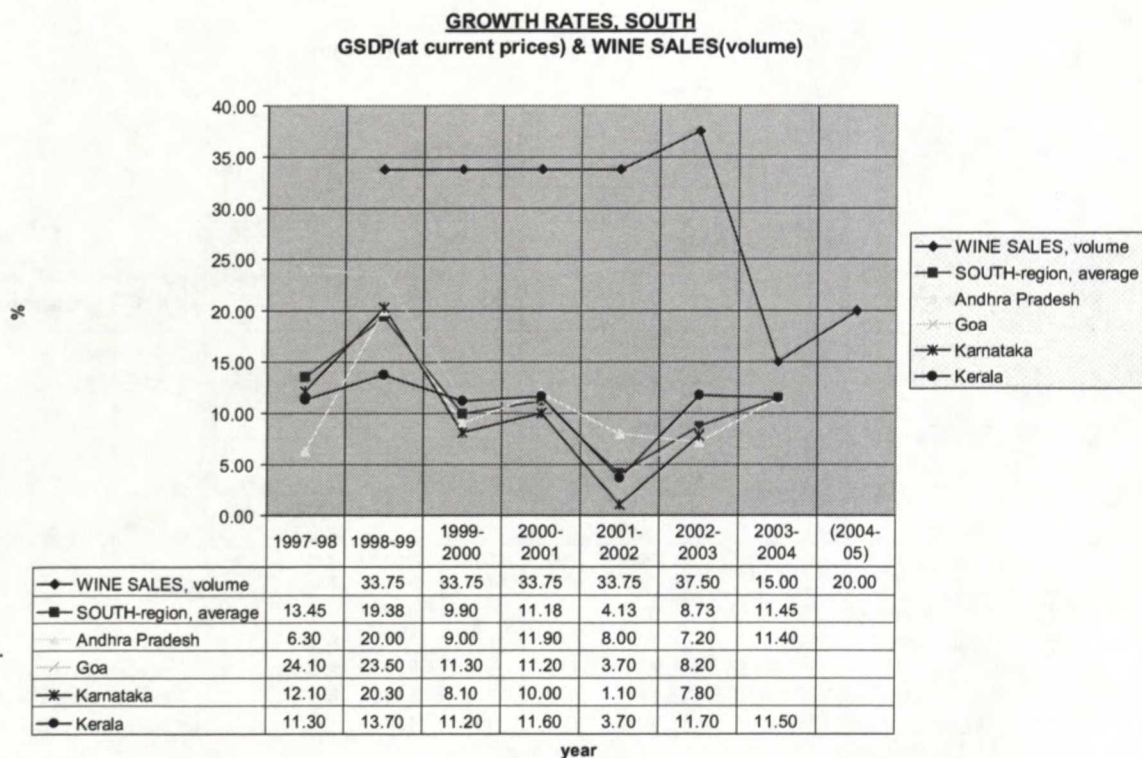


Figure 8: GSDP and wine sales growth rates, SOUTH (1997-2004)

In Figure 8, the growth rate trends of the South region are similar to those of the North and the East regions. The average GSDP growth rate was declining during 1997-2001 and accelerated again after that, whereas the wine sales growth rate dropped as the average GSDP growth rate accelerated in 2003. No logical connection between the growth rates can be found.

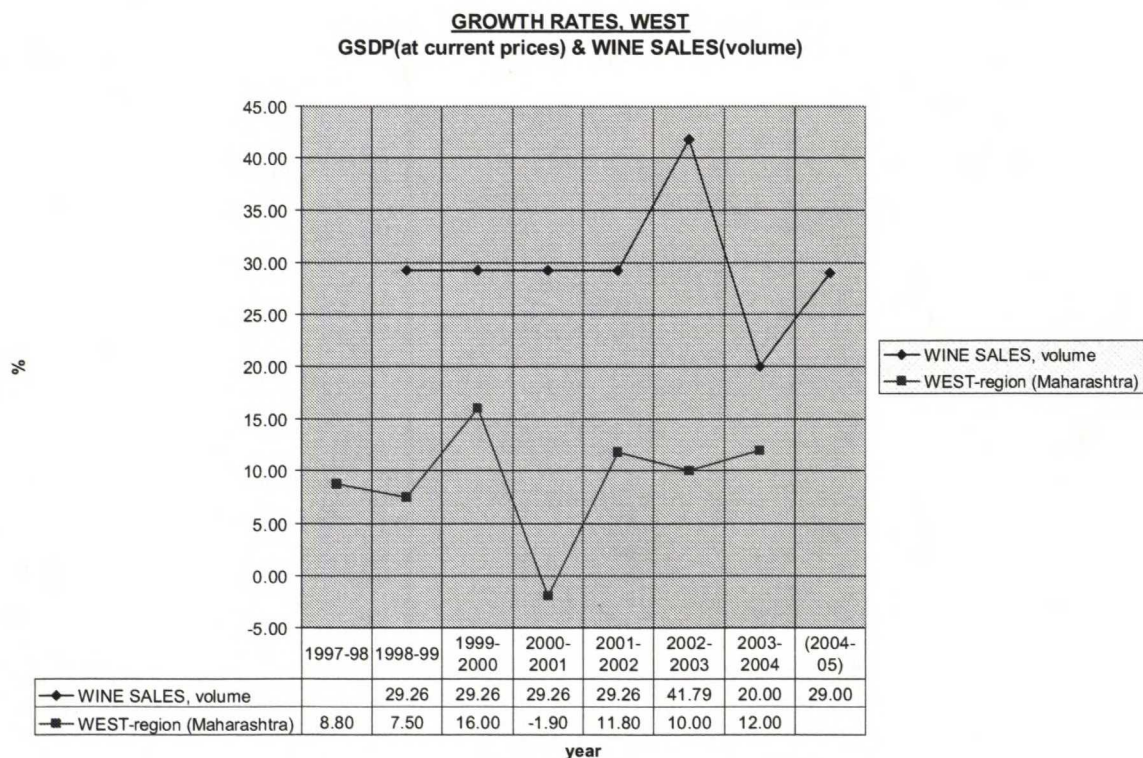


Figure 9: GSDP and wine sales growth rates, WEST (1997-2004)

The *Figure 9* demonstrates the growth rates in the West region, which consists of Maharashtra state alone – thus providing valuable state level wine sales and GSDP data. In general, the GSDP growth accelerated during 1997-1999, dropped dramatically in 2000 reaching negative growth and accelerated then back to level of 10% and above, where it stayed until the end of the observation period. However, wine sales growth did accelerate in 2002 and declined in 2003, at the same time as the GSDP growth rate was rather stable.

The variations in wine sales growth rates during the time that GSDP growth rate was almost stable shows that there are hardly any connections between these two growth rates.

In none of the figures and analysis above could I establish a clear connection with the wine sales growth rate and GSDP growth rate, this could be also due to incomplete data. There

were clear trends for both variables, the GSDP growth was slowing down during 1997-2000/2002, then accelerating (and leveling) again. Whereas the wine sales growth rates (excluding the trend of 1997-2001 as those figures were calculated estimate average growth rates) seemed to peak in 2002, then declined sharply the next year (but continued to grow) and then accelerated again. However, there was no clear interrelation between these two variables; the relation in 2002 where GSDP growth rates mostly accelerated and wine sales growth rates diminished sharply, could be misinterpreted as negative correlation, but that would be against the logic – if incomes would increase, wine sales would decrease; this makes no sense and thus can be interpreted as just a coincidence.

Due to the fact that no clear connection between the variables: wine sales and GSDP, could not be established through growth rate comparison, I will use in detail statistical regression analysis in order to test my hypothesis. This regression analysis is based on *Table 6*. The Regression analysis tool performs linear regression analysis by using the "least squares" method to fit a line through a set of observations. You can analyze how a single dependent variable is affected by the values of one or more independent variables (Excel). The selected independent variables for explaining the dependent variable; Indian wine markets, are urbanization percentage at state level, Gross State Domestic Product and state population. Information is from 2001.

Table 6: Data for regression analysis

State_name	Wine sales, revenue(Cr.Rs.)	Urbanization,%	GSDP,2001(cr.rs.)	State population
Arunachal Pradesh	0.00	20.00	1,740.00	1,097,968.00
Assam	5.00	13.00	29,198.00	26,655,528.00
Chandigarh	21.00	90.00	5,079.00	900,635.00
Delhi	21.00	93.00	68,747.00	13,850,507.00
Goa	16.00	50.00	6,736.00	1,347,688.00
Haryana	0.00	29.00	57,937.00	21,144,564.00
Himachal Pradesh	0.00	10.00	14,202.00	6,077,900.00
Jammu and Kashmir	0.00	25.00	12,805.00	10,143,700.00
Karnataka	16.00	34.00	97,253.00	52,850,562.00
Kerala	16.00	91.00	69,602.00	31,841,374.00
Maharashtra	35.00	42.00	241,877.00	96,752,247.00
Manipur	0.00	24.00	3,074.00	2,166,788.00
Meghalaya	0.00	20.00	3,842.00	2,318,822.00
Orissa	5.00	15.00	37,891.00	36,706,920.00
Punjab	0.00	34.00	62,968.00	24,359,296.00
Rajasthan	0.00	23.00	76,888.00	56,507,188.00
Sikkim	0.00	11.00	1,039.00	540,851.00
Tripura	0.00	17.00	5,660.00	3,199,293.00
West Bengal	5.00	28.00	143,538.00	80,176,197.00
Pondicherry	0.00	67.00	3,828.00	971,345.00
Andhra Pradesh	16.00	27.00	135,597.00	76,210,007.00
Uttar Pradesh	0.00	21.00	170,424.00	166,197,921.00
Jharkhand	0.00	22.00	27,358.00	29,945,829.00
Bihar	0.00	10.00	51,345.00	82,998,509.00
Madhya Pradesh	0.00	27.00	71,387.00	60,348,023.00
Chattisgarh	0.00	20.00	26,074.00	20,833,803.00

The following are the results of this regression analysis (see *Appendix 7* and text below for explanations):

SUMMARY OUTPUT

Regression Statistics		ANOVA				
			df	SS	MS	Significance F
Multiple R	0.836799399					
R Square	0.700233235	Regression	3	1589.52944	529.843148	17.1301
Adjusted R Square	0.659355949	Residual	22	680.470557	30.9304798	5.78524E-06
Standard Error	5.561517765	Total	25	2270		
Observations	26					

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-3.3834584	2.255406037	-1.50015	0.14779	-8.06089	1.2939725
Urbanization,%	0.17454181	0.049461106	3.52887	0.001889	0.071966	0.277118
GSDP,2001(cr.rs.)	0.00015869	3.76282E-05	4.217382	0.000355	8.07E-05	0.0002367
State population	-1.467E-07	5.80864E-08	-2.52627	0.01923	-2.7E-07	-2.63E-08

PROBABILITY OUTPUT			
<i>Percentile</i>	<i>Wine sales,Revenue (Cr.Rs.)</i>	<i>Percentile</i>	<i>Wine sales,Revenue (Cr.Rs.)</i>
1.923076923	0	51.923077	0
5.769230769	0	55.769231	0
9.615384615	0	59.615385	0
13.46153846	0	63.461538	5
17.30769231	0	67.307692	5
21.15384615	0	71.153846	5
25	0	75	16
28.84615385	0	78.846154	16
32.69230769	0	82.692308	16
36.53846154	0	86.538462	16
40.38461538	0	90.384615	21
44.23076923	0	94.230769	21
48.07692308	0	98.076923	35

RESIDUAL OUTPUT					
<i>Observation</i>	<i>Predicted Wine sales,Revenue (Cr.Rs.)</i>	<i>Residuals</i>	<i>Observation</i>	<i>Predicted Wine sales,Revenue (Cr.Rs.)</i>	<i>Residuals</i>
1	0.22238478	-0.22238478	14	-0.138758935	5.138758935
2	-0.392395639	5.392395639	15	8.968979538	-8.968979538
3	12.99914264	8.000857364	16	4.540575816	-4.540575816
4	21.72610961	-0.726109612	17	-1.377982517	1.377982517
5	6.21482216	9.78517784	18	0.012481302	-0.012481302
6	7.769624678	-7.769624678	19	12.5169008	-7.516900802
7	-0.276172795	0.276172795	20	8.775780618	-8.775780618
8	1.523637839	-1.523637839	21	11.66418856	4.335811444
9	10.22888751	5.771112489	22	2.938722347	-2.938722347
10	18.87269412	-2.872694123	23	0.40366157	-0.40366157
11	28.13374107	6.866258931	24	-5.669335357	5.669335357
12	0.975407069	-0.975407069	25	3.802164543	-3.802164543
13	0.376805861	-0.376805861	26	1.18793281	-1.18793281

As the data on which this regression analysis is based on contains many zero values, one could argue that the analysis would not be accurate. One of the most important results is the R –squared value presented in gray background. R –squared value is an indicator from 0 to 1 that reveals how closely the estimated values for the trendline (in this case wine sales) correspond to actual data: the closer to 1 the R-square is, the more reliable the trendline is (Excel). As we can see in this case *the R –squared value is approximately 0,70 which equals to 70% validity and thus proves my hypothesis correct*. This means that independent variables of urbanization percentage at state level, Gross State Domestic Product and state population can be used to estimate Indian wine markets and wine sales with 70% validity. However, there are some country specific features in India that have to be noticed. I will introduce these features in the following chapter.

7.3 Conditions of the regression model

When considering the country specific features of India that must be taken in considering when using the regression model and variables mentioned in the previous chapter, there is one very important feature that might affect the analysis – inequalities in income distribution. The statistical data also presented another unexplained phenomenon; the rapid decline in wine sales growth in 2003 doesn't seem to fit to the model, but as it happened in all of the market regions one could assume that there was some particular reason for this. However, as I interviewed the wine professionals over e-mail about this, they said that no clear reason for it has not been established. One could be that in 2001 the quantitative restrictions on wine along with other spirits were abolished and as a consequence the growth rates of 2002 were peaking; growth of 30-40% was experienced in many of the areas. The following year 2003, the growth rates came down to 15-20% - and the professionals guessed that this might have been simply because of market's over reaction to abolishment of quantitative restrictions; in 2002 everyone was buying as much as they

wanted and could, perhaps it was just a fast growth burst and then the markets leveled up again.

Perhaps the most important condition to be kept in mind is the *uneven income distribution*. As the income is distributed unevenly, the chosen variable – per capita GSDP is not as accurate as it could be. It is just an estimated average amount of income of the people in a state. The truth might be that the 10% of that population could have income equal to 35% of the total GSDP; this naturally distorts the statistical results; this being true particularly in case of big states such as Maharashtra, where the income differences can be huge. There are some standards measuring the inequalities in income distribution, such as Lorenz curve and Gini –index; can be derived from the Lorenz curve. I will now introduce these in order to back up the assumption of uneven income distribution.

The Gini –index measures the degree of inequality in distribution of household income in a country. It is calculated from the Lorenz curve, in which the cumulative household income is plotted against the number of households; arranged from the poorest to the richest. The index is a ratio of the area between a country's Lorenz curve and the 45 degree line. If income would be distributed evenly, the Gini –index would be zero. (Theodora) In 2000 the Gini –index of India was 32,5 and the top 10% of households held 33,5% of total household incomes, whereas the bottom 10% held only 3,5% of total incomes (CIA factbook). The figures below will demonstrate the Lorenz curves of selected countries and Gini –index of India, based on data from 1990.

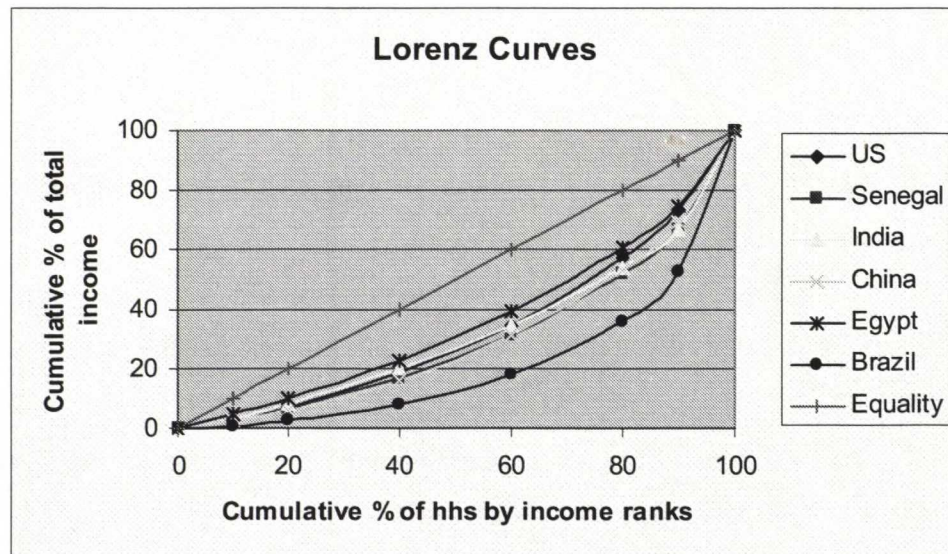


Figure 10: Lorenz curves of selected countries

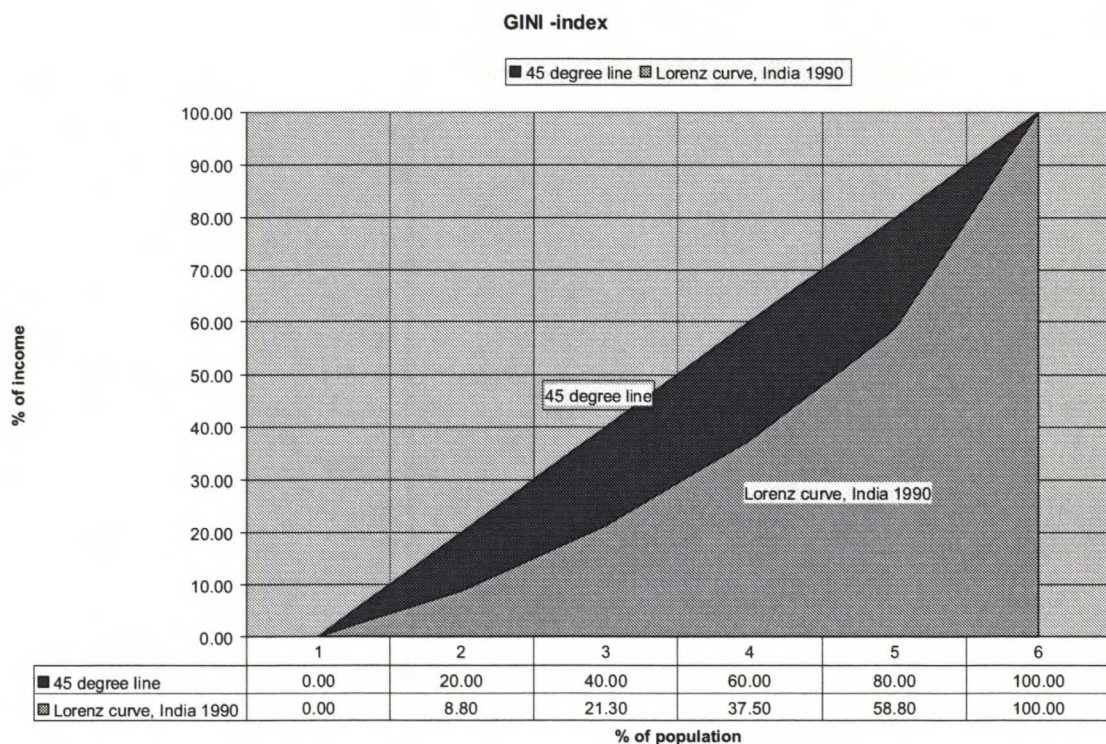


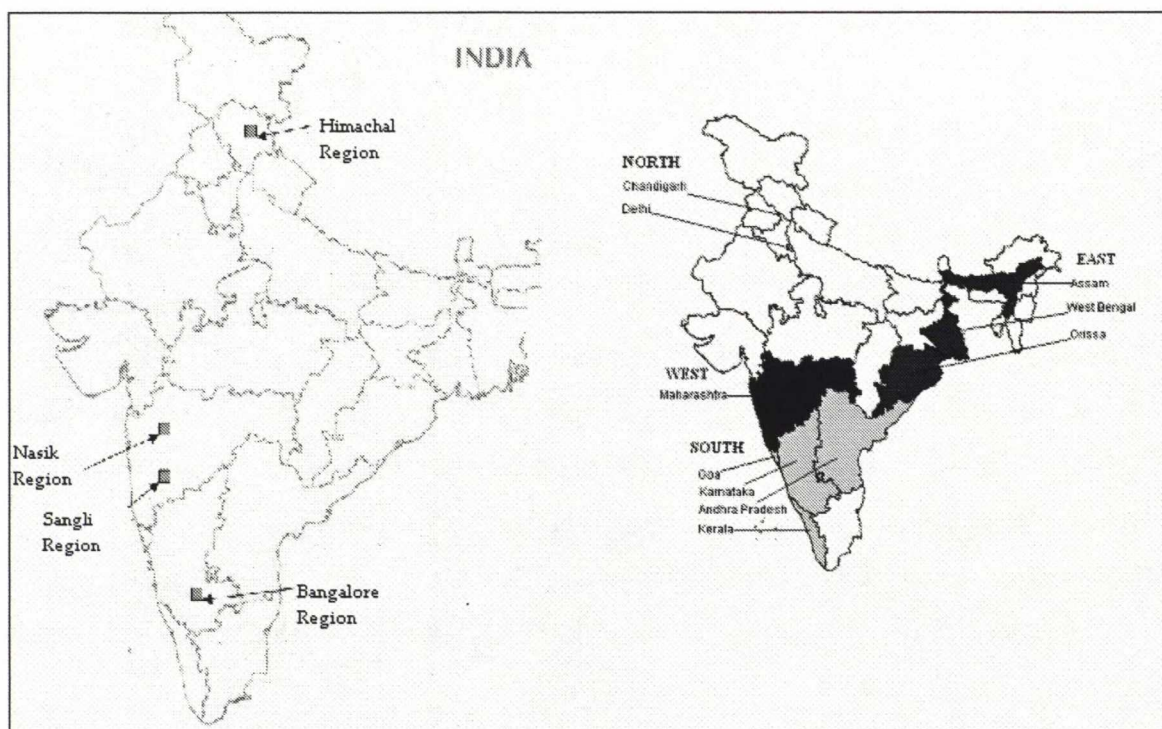
Figure 11: The Gini -index of India (1990)

Figure 10 shows that income distribution in India is very similar to that of China, which is also known for its uneven income distribution. Perhaps a variable like “mobile phones per 1000 people” would have been more accurate to demonstrate the disposable

income, unfortunately that kind of information was available from only handful of states so it is not very useful variable.

Another big issue behind the wine consumption in India is the attitude toward wine and alcohol. It's a variable that is much more difficult to measure. But if we take a look at *Map 9* (next page), in which I have taken the main domestic wine production regions of India and the Indian wine markets, we can see that those production regions are all close to main wine markets – or perhaps I should put it the other way around, all major wine market areas are close to domestic production regions. This might have to do with the general awareness of the product – wine. As in many innovation theories, the phenomenon starts in one place and quite quickly spreads to the nearby areas – this could also be the case with wine in India.

Also closely linked to domestic wine production are the national and state policies and programs concerning wine. One good example comes from the state of Maharashtra; the *Maharashtra Industrial Development Corporation*, MIDC and *Maharashtra Grape Processing Industrial Policy 2001*. These two have been established in order to help the new and existing domestic wine producers in the region and to promote the industry in general. (IndianWine) It is clear that these kinds of government efforts will have direct effects on wine consumption in that region. The case of Maharashtra can serve as an example to other regions and I'm sure many will follow they lead – after all, this sort of activity increases the rural incomes that has been problematic for many states.



Map 9: Domestic wine production regions and Indian wine market regions.

(Symbols in the map on the left represent the wine production region in question and shadings in the map on the right market region in question.)

7.4 Future potential of Indian wine markets

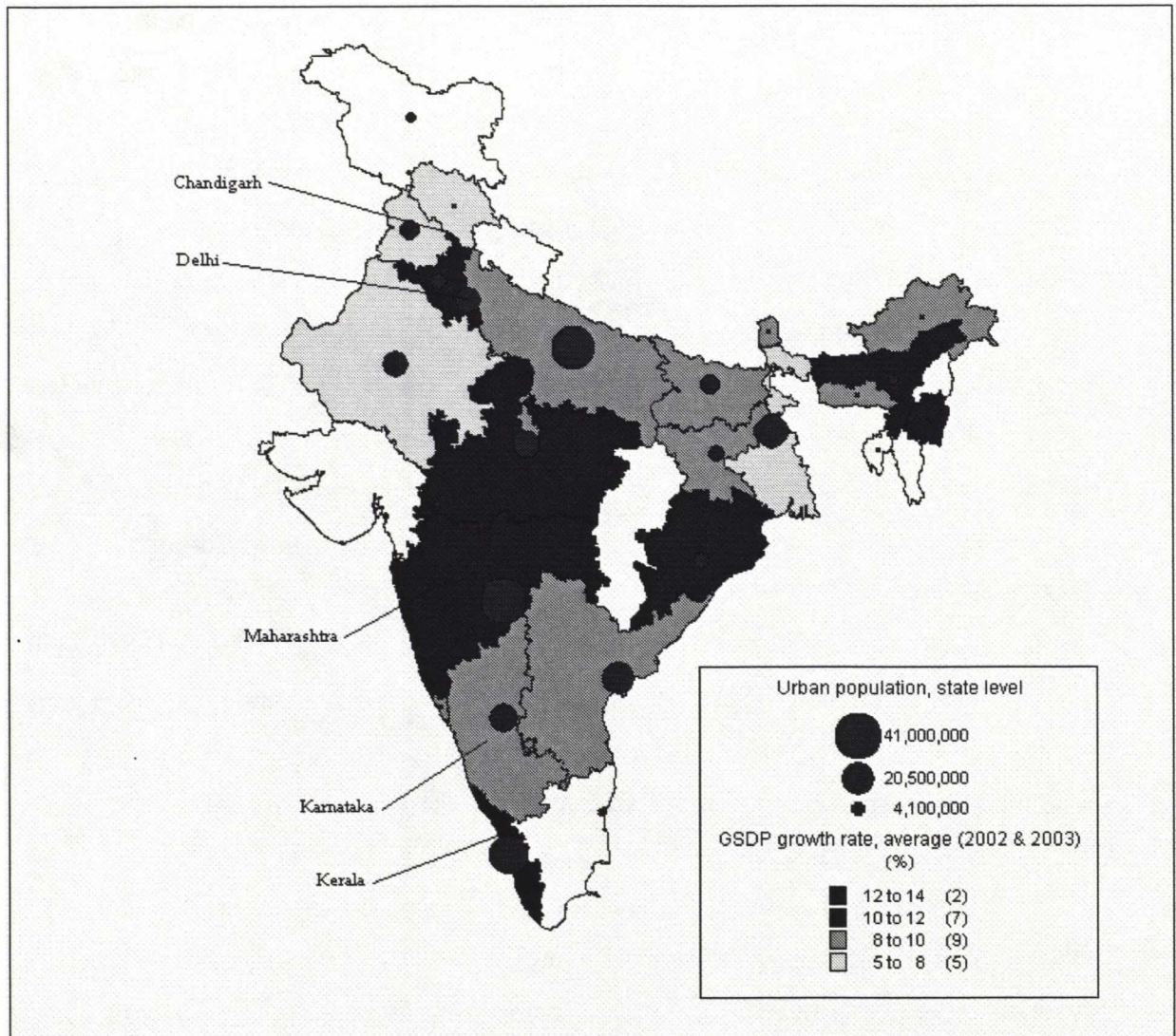
Many authors, to whom I have referred to in this study, are convinced that high wine market growth rates continue during the years to come in India – and I have no reason to argue with that. With the regression model of the previous chapters one could explore different scenarios of those variables and estimate how they will affect the development of wine markets in India. Due to reasons presented at the *Conditions of the regression model* – chapter, in addition to results from the regression analysis I will also present more qualitative reasoning for my assumptions. I have exchanged several e-mails with the authors of Indian Wine Industry Report 2004-2005, Sameer Bagul and Aakash Singh, they

are one of the top professionals in the field of Indian wines and wine markets. In addition to those e-mails, news from various sources about Indian economy and development have had influence on the following assumptions.

I will try to reason my thinking and finally present my view of future Indian wine markets - for a foreign distributor. The country's economical situation and development certainly affects the wine markets, as *Statistical analysis* –chapter and regression analysis showed us; with conditions of that regression analysis presented. Thus one should be aware of the economical development, but perhaps should not rely only on that information. Aspects of changing consumer habits and behavior are hard to predict, but one should be looking for any signs of such activities. Whether it is the increasing number of mobile phones, second cars in households or popularity of Western items or culture (as this will indicate more open attitudes) – all these kind of changes could be signs of potential increase in wine markets as well.

For a foreign distributor the regional market development is of great interest in a vast country like India; where to invest, where the markets are growing more rapidly and so on. I will thus introduce an idea of development of Indian regional wine markets and logic behind that idea.

As mentioned several times, wine consumption is an urban phenomenon in India; and the regression analysis proved this correct. Thus the share or amount of urban people in a state should be taken in consideration when estimating its future wine markets. However, as the variable of urban population is rather stable; the changes in urbanization rate are minor and it changes very slowly, the absolute amount of urban population is more important. The other important factor of the regression analysis was Net State Domestic Product demonstrating the disposable income, as mentioned in the conditions of the model the per capita Net State Domestic Product doesn't perhaps give full picture of disposable income, but all in all, it still demonstrates the economic development in the region and one can expect that when the economy is growing, so is the disposable income. Thus I will also involve the recent average NSDP growth rates of the states in this analysis. In *Map 10* I have combined these features.



Map 10: Average GSDP growth rate (2002&2003) and urban population (state level) presenting the future potential of Indian wine consumption.

By combining the two important features explaining the Indian wine markets, one can point out regions where most growth potential exists. Kerala and Chandigarh have the fastest growing economies at the moment, both also have significant urban population, so in selected variable terms these regions could be expected to increase their wine sales more than others. Also strong wine states of Maharashtra and Delhi score well on these variables.

In general, it can be expected that Maharashtra continues to have the largest share of wine consumption in India and there are no signs of decreasing wine markets from the North either; but we have to remember that markets in Chandigarh and Delhi are somewhat limited, as their populations are smaller and do not offer similar potential. What comes to the South; expectations are high. Especially, the wine consumption in the states of Karnataka and Kerala are expected to rise heavily. The Bangalore wine production region situates in Karnataka state and so does the IT-capital of India, the city of Bangalore. As the Bangalore is becoming more western in terms of markets and consumer behavior, the number of foreign investments and foreigners is increasing; and government is starting to believe in the wine production industry; the situation looks promising. Kerala on the other hand, as shown above, has strong economic growth rates and significant amount of urban population.

Of the “non-wine” states, there seems to be two new potential market regions or states; Uttar Pradesh and Madhya Pradesh. Uttar Pradesh has vast urban population and its economy is also growing quite rapidly. In the case of Madhya Pradesh the urban population is smaller, but economic growth faster. Perhaps these states will be shown as “wine consuming states” in Indian Wine Industry Reports within few years or so.

What comes to foreign companies operating in India, as mentioned earlier, it requires large budgets and long-term plans to establish a permanent and eventually profitable presence in India. Many foreign companies do have faith in those future profits and they are ready to invest considerable amount of resources at this point, although the profits are still uncertain. Even the large multinational companies have entered to Indian wine markets through domestic partners and, in my opinion, this could be the preferable entry plan. It is true that some of the control and potential profits are lost to the domestic partners, but as in many entries to fairly unknown markets; this partner can provide connections to distribution channels and customers and offer market information; without these there would not be anything to operate with.

8 CONCLUSIONS

Wine production and consumption on larger scale are still relatively recent phenomena in India. Main reasons behind the high growth rates of Indian wine markets are increased disposable incomes among the middle and upper-middle classes; and westernization of consumption habits in urban areas. In this study the purpose was to provide insight of current Indian wine markets, evaluate the future potential of Indian wine markets; and gather information for simple market entry analysis.

The information for a simple market entry analysis was presented in various chapters, the ones dealing with background information on India provided insight of Indian macroeconomic environment, in which the business is made. Information of current Indian wine markets goes also to this category – but it provided bit more comprehensive picture of the particular industry, wine industry, in India. Last, but definitely not least, the evaluation of future potential of Indian wine markets was the main study area. Some parts, like analyzing the risks and competition, are actually part of this evaluation of future potential as well as part of providing insight of the current wine market situation in India.

Current wine markets in India

Currently the overall wine sales in India account for approximately 600 000 cases (7,2 million bottles), of which tables wines account for 90% and more expensive vintage wines for the remaining 10% of the sales. Taking in consideration that many do not even know that India produces wine at all, it is surprising that domestically produced wine account for 75% of the markets. However, even though the share of imported wine is small at the moment, it is the future potential of the markets that interests the foreign wine businesses. After all, any markets that are growing at healthy rate of 25% annually are of global interest. Especially taken in consideration that domestic Indian wine producers have two obvious barriers to joining the top rank wine producers: 1) temperatures do not fall low enough at nights – this affects the colour and composition of grapes and thus limits the quality; and 2) high tax regime of 250%, even if a bottle of wine could be produced at

cheap price, the price for consumers will rise. On the other hand, high import duties and taxes are also problematic for the foreign wine businesses; especially when 99% of imported wine is sold through institutions like hotels and restaurants, with their own mark-ups on top of those duties.

To some extent, the Indian wine markets are also very concentrated: three big Indian producers account for 70% of the sales; and Maharashtra state alone accounts for nearly 50% of the supply.

Risks

The risks of operating in wine business in Indian macro environment were analyzed through *PEST* –analysis and *Political, Economic, Social and Technological* aspects were covered.

What comes to political factors, in 2001 quantitative restrictions on spirits and wine were removed, but remaining high import duties (150-300%) constitute a modest risk, although the trend has been that those duties have been reduced consistently. If the government succeeds to implement the planned “ideal Value Added Tax” successfully, it would unite India into a large common market. This is positive news, but if the implementation fails, the businesses have to continue to operate in the jungle of national and state level policies and taxes – this in fact can be a risk. In employment terms, there are no harsh laws and cost of labour is rather cheap. Political stability has also improved recently, although it was in 2004 that a surprise winner in national elections caused a huge stock market plunge in India. However, the economic reforms were left untouched and markets recovered rapidly.

Economically perhaps the biggest factors of risk are the rather *high interest rates*, which are hard to lower due to high public debt; and *uneven income distribution* that has divided the country economically into two worlds: poor rural villages and rapidly developing rich urban regions. As the main wine markets are those rich urban areas, this phenomenon doesn't constitute a very serious risk. The economic growth has been good in past years and is expected to continue so – since 1994, the average annual growth rate is

6.8%. But if the economic growth further accelerates, the government might have troubles keeping the inflation under control. The fluctuation of currency, Indian Rupee, has also been moderate during the recent years and it should not cause particular risks.

The neither social nor technological factors would seem not to cause any direct risks. Attitudes of Indians are changing towards more friendly and awareness of wine among Indian people is increasing. Indians are also very health conscious and the awareness of studies proving positive health effects of wine is also increasing. What comes to technological factors, they are not actually relevant in this study as the perspective is that of a foreign *distributor*.

Competition

The competition on Indian wine markets is analyzed through Porter's Five Competitive Forces –model.

Due to the fact that Indian wine markets are growing and at the moment rather limited, customers do have quite a lot of negotiation power. There are many companies - foreign and domestic, offering their wines, but customer segment is limited so they can actually race the competing suppliers against one another and take advantage of this in form of better conditions of the deal. This is true especially when we take in consideration that at the moment 99% of imported wine is sold through institutions and through only 10 states. Number of those institutions is limited; big hotel chains being the most powerful customer group.

What comes to competitors, there are the three big Indian domestic wine producers (Indage, Grover and Sula) that dominate 70% of the markets; in addition to that there are two major Indian wine importers (Sansula and Brindco) that cover most of the “star” hotel chains. So competition is very tight and there are several domestic producers, domestic wine importers and foreign wine importers competing for those remaining markets. At the moment the biggest challenge in the industry is to increase the wine markets at large – take this aspect with tight competitive situation and you get difficult strategic decisions. In some

cases some outsider organizations might distort the competition; there are bodies that are set up to increase the wine sales of certain countries or domestic regions.

The competitive force of suppliers is not relevant in this study, as mentioned; this study is conducted from perspective of a foreign supplier itself.

If we take a look at total alcohol beverage markets in India, we can see that wine accounts for only a few per cent. Thus the aspect of substitutive products is especially important; businesses in beer and flavored alcoholic beverages, FABs markets also must be considered as competitors. These are the most accurate substitutive products for wine, as they are also low in alcohol content and demand for such beverages has increased in India – especially among the young and women.

As already mentioned when dealing with competitive force of competitors; competition is very tight on Indian wine markets. Thus it is not easy for the new entrants to enter the markets. This is not due to restrictions, but due to “first in the field” advantages. Existing businesses have established distribution channels, warehousing facilities and preferably long-term relations with their major customers. Due to these aspects, a new entrant will have to have long-term plans and considerable budget in order to establish a lasting and eventually profitable presence in India.

Future potential of the Indian wine markets

The potential of Indian wine markets was studied through regional and statistical analysis in order to construct a regression model for Indian wine sales. The hypothesis was that *the higher the per capita income and the higher the amount of urban population; the higher the wine consumption will be in that region*. The regional analysis seemed to support the hypothesis and with the help of regression analysis I could finally prove my hypothesis correct (with 70% validity) through statistical analysis. However, there is an important country specific feature of India that must be kept in mind when using the regression model; *inequalities in income distribution*, which might affect the accuracy of the selected variable – *per capita income*.

Regionally it is expected – and the regression model supports these expectations - that the state of Maharashtra continues to have the largest share of Indian wine consumption. Maharashtra region is strong in economical terms and developing all the time, there is also a vast urban population and two of the major domestic wine production areas. Delhi and Chandigarh in the north also continues to have significant share of the markets, but one should remember that the population is the limiting factor in that region – both of the states are rather small in population terms in Indian standards. Possibly the highest growth rates in the Indian wine markets in the future will come from the South region, especially from Bangalore area in the state of Karnataka; and from Kerala state. Bangalore is the IT-capital of India and has thus attracted a lot of foreign investments and foreigners. The wine production is also increasing in Bangalore and the awareness of wine is spreading. Kerala's economy is growing rapidly and with significant urban population it can be expected to hold considerable wine sales growth potential. There are also some sings that some states, Uttar Pradesh and Madhya Pradesh; in which there are currently no wine sales in practice, might offer a good growth potential.

Although the wine market situations in India remain tough in competition terms, many foreign companies do have faith in future profits and they are ready to invest considerable amounts of resources at this point, although the profits are still uncertain. Even the large multinational companies have entered to Indian wine markets through domestic partners and in my opinion this could be the preferable entry plan. It is true that some of the control and potential profits are lost to the domestic partner, but as in many entries to fairly unknown markets; this partner can provide connections to distribution channels and customers and offer market information; without these there would not be anything to operate with.

All in all, I feel that this study has fulfilled its purposes rather well, the regression model reached validity of 70% and with the presented conditions of that model kept in mind, it can provide good estimates of future Indian wine consumption.

8.1 Discussion

I'm sure that Indian wine production and consumption phenomena will catch international attention and the subject will be studied extensively in the future. However, at the moment there are hardly any publicly available studies on the matter and this caused some problems with availability of data. It would be interesting to see the same study being conducted, let's say, in ten years time, after the Indian wine markets are more established, more widely studied and information would be more widely available. By that time there would be data covering extensive time periods and thus the patterns between the variables would be more accurate and easier to prove. At that time one could also see how well the regression model of this study would apply in practice.

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Figures

Figure 1: PEST – analysis as part of overall environmental scan

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Figure 2: Porter's Five Forces- model (Porter, 1980)

<http://www.few.eur.nl/few/research/pubs/cs/1999/eur-few-cs-99-02.pdf>
April 3, 2005

Figure 3: Development of the market shares (2003-2005e)

Bagul, Sameer & Singh, Aakash (2005) *Indian wine industry report 2004-2005*.
DSM Marketing Pvt. Ltd., Mumbai, India p.12

Figure 4: Annual GDP growth rate of India (1951-2004)

<http://economywatch.com/indianeconomy/indian-economy-overview.html>
December 20, 2005

Figure 5: Regional wine consumption, India 2001

Sources: see *Appendix 5*

Figure 6: GSDP and wine sales growth rates, NORTH (1997-2004)

Sources: see *Appendix 5&6*

Figure 7: GSDP and wine sales growth rates, EAST (1997-2004)

Sources: see *Appendix 5&6*

Figure 8: GSDP and wine sales growth rates, SOUTH (1997-2004)

Sources: see *Appendix 5&6*

Figure 9: GSDP and wine sales growth rates, WEST (1997-2004)

Sources: see *Appendix 5&6*

Figure 10: Lorenz curves of selected countries

are.berkeley.edu/courses/EEP151/fall2004/homeworks/HW2_Sol_Text.doc
January 21, 2006

Figure 11: The Gini –index of India (1990)

Based on data from alpha.montclair.edu
January 21, 2006

Maps

Map 1: General map of India

http://www.globalsecurity.org/military/world/india/images/india_rel96-cia-map.jpg

January 5, 2006

Map 2: Administrative divisions of India, 2001

<http://www.censusindia.net/results/2001maps/index.html>

January 5, 2006

Map 3: Regional wine market segments in India

Peltola, Aki (2006) Based on Bagul & Singh (2005) *Indian wine industry report 2004-2005*. DSM Marketing Pvt. Ltd., Mumbai

Map 4: Four main wine production areas of India

Bagul, Sameer & Singh, Aakash (2005) *Indian wine industry report 2004-2005*. DSM Marketing Pvt. Ltd., Mumbai, India

Map 5: Wine consumption in India 2001, volume (cases)

Peltola, Aki (2006) Based on Bagul & Singh (2005) *Indian wine industry report 2004-2005*. DSM Marketing Pvt. Ltd., Mumbai

Map 6: Urban population 2001, state level

Peltola, Aki (2006) Based on EconomyWatch *State Profiles*

<http://economywatch.com/stateprofiles/>

Map 7: Net State Domestic Product per capita 2001, state level

Peltola, Aki (2006) Based on EconomyWatch *State Profiles*

<http://economywatch.com/stateprofiles/>

(NSDP: Net State Domestic product)

Source: Directorate of Economics & Statistics of respective State Governments (As on March 26, 2004), Ministry of Health and Family Welfare, Govt. of India)

Map 8: Total urban Net State Domestic Product, state level (2001)

Peltola, Aki (2006) Based on EconomyWatch *State Profiles*

<http://economywatch.com/stateprofiles/>

(NSDP: Net State Domestic product)

Source: Directorate of Economics & Statistics of respective State Governments (As on March 26, 2004), Ministry of Health and Family Welfare, Govt. of India)

Map 9: Domestic wine production regions and Indian wine markets

Peltola, Aki (2006) Based on Bagul & Singh (2005) *Indian wine industry report 2004-2005*. DSM Marketing Pvt. Ltd., Mumbai

Map 10: Average GSDP growth rate (2002&2003) and urban population (state level)
Peltola, Aki (2006) Based on EconomyWatch *State Profiles*
<http://economywatch.com/stateprofiles/> &
Directorate of Economics & Statistics of respective State Governments, and for All-India:
Central Statistical Organisation

Tables

Table 1: Indian wine markets in 2004, volume and revenue
Bagul, Sameer & Singh, Aakash (2005) *Indian wine industry report 2004-2005*.
DSM Marketing Pvt. Ltd., Mumbai, India p.11

Table 2: Regional premium wine markets 2004
Based on: Bagul, Sameer & Singh, Aakash (2005) *Indian wine industry report 2004-2005*.
DSM Marketing Pvt. Ltd., Mumbai, India p.33

Table 3: Import duty changes in 2004
<http://indianwine.com/Ahuja/winetaxchanges2004.htm>
October 20, 2005

Table 4: Development of Indian real interest rate vs. that of US (1992-1999)
Jha, Raghendra. *The downward rigidity of Indian interest rates*
http://rspas.anu.edu.au/papers/asarc/jha_2.pdf
December 20, 2005

Table 5: Annual average exchange rate of Indian Rupee / USD
<http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/56465.pdf>
December 20, 2005

Table 6: Data for regression analysis
Sources: see *Appendix 4*

APPENDICES

Appendix 1: Summary of Indian wine industry report 2004-2005

SUMMARY

The wine industry report provides extensive information about the Indian wine market in the context of its size and brands currently available. The report also details the wine industry projections for the next five years.

The Highlight of the report is the Wine Rating on the quality parameter by an international qualified wine advisor.

This report will be extremely useful and is a must to new players wanting to invest in Indian wine market. Currently the Indian wine industry is growing at the rate of 25-30% per annum, with few good wine makers.

This report is compiled by two professionals after studying the Indian Wine industry for over a year and personally visiting the wineries and tasting almost all the Indian wine on the shelves.

Dr. Aakash Singh Rathore LLM

Aakash, born in New York, holds the internationally recognized title of **Certified Wine Advisor**, having studied enology in the USA and Europe. He is currently associated with Delhi University as a Reader in the Dept. of Philosophy.

Sameer Bagul BE, MBA

Sameer, a wine enthusiast, an IIM Calcutta (Premier B-School in Asia) graduate has experience in Sales and Marketing in consumer goods, education industry.

Appendix 1:

Bagul, Sameer & Singh, Aakash (2005) *Indian wine industry report 2004-2005*. DSM Marketing Pvt. Ltd., Mumbai, India p. 4

Appendix 2: Basic facts of India

Geography

Location:	Southern Asia, bordering the Arabian Sea and the Bay of Bengal, between Burma and Pakistan
Area:	<i>total:</i> 3,287,590 sq km (slightly more than one-third the size of the US)
Climate:	varies from tropical monsoon in south to temperate in north
Terrain:	upland plain (Deccan Plateau) in south, flat to rolling plain along the Ganges, deserts in west, Himalayas in north
Elevation extremes:	<i>lowest point:</i> Indian Ocean 0 m <i>highest point:</i> Kanchenjunga 8,598 m
Natural resources:	coal (fourth-largest reserves in the world), iron ore, manganese, mica, bauxite, titanium ore, chromite, natural gas, diamonds, petroleum, limestone, arable land
Land use:	<i>arable land:</i> 54.35% <i>permanent crops:</i> 2.66% <i>other:</i> 42.99% (1998 est.)
Irrigated land:	590,000 sq km (1998 est.)
Natural hazards:	droughts; flash floods, as well as widespread and destructive flooding from monsoonal rains; severe thunderstorms; earthquakes
Environment—current issues:	deforestation; soil erosion; overgrazing; desertification; air pollution from industrial effluents and vehicle emissions; water pollution from raw sewage and runoff of agricultural pesticides; tap water is not potable throughout the country; huge and growing population is overstraining natural resources

Government

Country name:	<i>conventional long form:</i> Republic of India <i>conventional short form:</i> India
Government type:	federal republic
Capital:	New Delhi
Administrative divisions:	28 states and 7 union territories
Legal system:	based on English common law; limited judicial review of legislative acts; accepts compulsory ICJ jurisdiction, with reservations
Suffrage:	18 years of age; universal
International organization participation:	AfDB, ARF (dialogue partner), AsDB, ASEAN (dialogue partner), BIS, C, CP, ESCAP, FAO, G-6, G-15, G-19, G-24, G-77, IAEA, IBRD, ICAO, ICC, ICFTU, ICRM, IDA, IEA (observer), IFAD, IFC, IFRCS, IHO, ILO, IMF, IMO, Interpol, IOC, IOM (observer), ISO, ITU, MIPONUH, MONUC, NAM, OAS (observer), OPCW, PCA, SAARC, UN, UNCTAD, UNESCO, UNHCR, UNIDO, UNIFIL, UNIKOM, UNMEE, UNMIBH, UNMIK, UNMOVIC, UNU, UPU, WCL, WCO, WFTU, WHO, WIPO, WMO, WToO, WTrO

Economy

GDP:	purchasing power parity - \$2.66 trillion (2002 est.)
GDP—real growth rate:	4.3% (2002 est.)
GDP—per capita:	purchasing power parity - \$2,540 (2002 est.)
GDP—composition by sector:	<i>agriculture:</i> 25% <i>industry:</i> 25% <i>services:</i> 50% (2002 est.)
Population below poverty line:	25% (2002 est.)
Inflation rate (consumer prices):	5.4% (2002 est.)
Labor force:	406 million (1999)
Labor force—by occupation:	agriculture 60%, services 23%, industry 17%(1999)
Unemployment rate:	8.8% (2002)
Budget:	<i>revenues:</i> \$48.3 billion <i>expenditures:</i> \$78.2 billion, including capital expenditures of \$13.5 billion (FY01/02 est.)
Industries:	textiles, chemicals, food processing, steel, transportation equipment, cement, mining, petroleum, machinery, software
Industrial production growth rate:	6% (2002 est.)
Exports:	\$44.5 billion f.o.b. (2001)
Exports—commodities:	textile goods, gems and jewelry, engineering goods, chemicals, leather manufactures
Exports—partners:	US 20.9%, UK 5.2%, Germany 4.3%, Japan 4.0%, Benelux 3.3% (2000)
Imports:	\$53.8 billion f.o.b. (2001)
Imports—commodities:	crude oil, machinery, gems, fertilizer, chemicals
Imports—partners:	UK 6.3%, US 6.0%, Belgium 5.7%, Japan 3.5%, Germany 3.5% (2000)
Debt—external:	\$100.6 billion (2001 est.)
Economic aid—recipient:	\$2.9 billion (FY98)
Currency:	Indian rupee (INR)
Exchange rates:	Indian rupees per US dollar - 48.6103 (2002), 47.1864 (2001), 44.9416 (2000), 43.0554 (1999), 41.2594 (1998)

People

Population:	1,049,700,118 (July 2003 est.)
Age structure:	<i>0-14 years:</i> 32.2% (male 173,973,350; female 163,979,116) <i>15-64 years:</i> 63% (male 342,620,712; female 319,259,867) <i>65 years and over:</i> 4.8% (male 25,281,756; female 24,585,317) (2003est.)
Median age:	<i>total:</i> 24.1 years <i>male:</i> 24.1 years <i>female:</i> 24.2 years (2002)
Population growth rate:	1.47% (2003 est.)
Religions:	Hindu 81.3%, Muslim 12%, Christian 2.3%, Sikh 1.9%, other groups including Buddhist, Jain, Parsi 2.5% (2000)
Languages:	English enjoys associate status but is the most important language for national, political, and commercial communication; Hindi is the national language and primary tongue of 30% of the people; there are 14 other official languages.

Transportation

Railways:	<i>total:</i> 63,518 km (15,009 km electrified) <i>broad gauge:</i> 45,142 km 1.676-m gauge <i>narrow gauge:</i> 15,013 km 1.000-m gauge; 3,363 km 0.762-m gauge and 0.610-m gauge (2002)
Highways:	<i>total:</i> 3,319,644 km <i>paved:</i> 1,517,077 km <i>unpaved:</i> 1,802,567 km (1996)
Waterways:	16,180 km <i>note:</i> 3,631 km navigable by large vessels
Pipelines:	crude oil 3,005 km; petroleum products 2,687 km; natural gas 1,700 km (1995)
Ports and harbors:	Chennai (Madras), Cochin, Jawaharal Nehru, Kandla, Kolkata (Calcutta), Mumbai (Bombay), Vishakhapatnam
Airports:	334 (2002)

Transnational Issues

Disputes—international:

much of the rugged, militarized boundary with China is in dispute, but the two sides have participated in more than 13 rounds of joint working group sessions on this issue; India objects to Pakistan ceding lands to China in 1965 boundary agreement that India believes are part of disputed Kashmir; with Pakistan, armed stand-off over the status and sovereignty of Kashmir continues; disputes with Pakistan over Indus River water sharing and the terminus of the Rann of Kutch, which prevents maritime boundary delimitation; Joint Border Committee with Nepal continues to work on resolution of disputed boundary sections; dispute with Bangladesh over New Moore/South Talpatty Island in the Bay of Bengal prevents maritime boundary delimitation

Illicit drugs:

world's largest producer of licit opium for the pharmaceutical trade, but an undetermined quantity of opium is diverted to illicit international drug markets; transit point for illicit narcotics produced in neighboring countries; illicit producer of methaqualone; vulnerable to narcotics money laundering through the hawala system.

Appendix 2:

Collected from <http://www.bartleby.com/151/in.html#Background>

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Appendix 3: Most important economic indicators (2000-2006e)

Year	2000	2001	2002	2003	2004a	2005e	2006e
GDP, %-change	3.9	5.2	4.1	8.6	6.7	7.2	6.7
GDP, current prices; USD billion	452.4	478.5	508.9	594.9	657.5	760.4	863.8
	440	460	480	560	610	690	780
GDP per capita, USD	6.0	2.7	4.9	6.6	8.4	7.9	6.8
Industrial production, %-change	3.8	4.5	7.7	9.7	8.0	8.5	9.1
Investments, %-change	2.6	5.9	2.8	8.2	9.3	6.9	6.3
Private consumption, %-change	9.2	9.2	10.5	10.4	10.1	10.0	9.3
Unemployment, %	4.0	3.8	4.3	3.8	4.4	4.3	4.4
Consumer prices, %-change	-5.3	-4.7	-5.9	-4.5	-4.7	-4.6	-4.3
Budget balance, % of GDP	-1.0	0.0	1.1	0.2	-0.6	-1.2	-1.5
Trade surplus/deficit, % of GDP	44.9	47.2	48.6	46.6	45.3	43.1	42.0
Exchange rate INR/USD							

Appendix 3:

<http://www.finpro.fi/NR/rdonlyres/854441EF-717B-4F53-A6F7-B103B7A8467A/1957/Intianmaaraorttil.pdf>

October 11, 2005

Appendix 4: Table used in regional analysis

!Column GSDP_2001 = NSDP 2001!

State_name	State_population20	Urban_percentage	GSDP_2001	Wine_consumption2001_
Arunachal Pradesh	1,097,968.00	20.00	1,740.00	0.00
Assam	26,655,528.00	13.00	29,198.00	5.00
Chandigarh	900,635.00	90.00	5,079.00	21.00
Delhi	13,850,507.00	93.00	68,747.00	21.00
Goa	1,347,668.00	50.00	6,736.00	16.00
Gujarat	50,671,017.00	37.00	105,023.00	0.00
Haryana	21,144,564.00	29.00	57,937.00	0.00
Himachal Pradesh	6,077,900.00	10.00	14,202.00	0.00
Jammu And Kashmir	10,143,700.00	25.00	12,805.00	0.00
Karnataka	52,850,562.00	34.00	97,253.00	16.00
Kerala	31,841,374.00	91.00	69,602.00	16.00
Maharashtra	96,752,247.00	42.00	241,877.00	35.00
Manipur	2,166,788.00	24.00	3,074.00	0.00
Meghalaya	2,318,822.00	20.00	3,842.00	0.00
Orissa	36,706,920.00	15.00	37,891.00	5.00
Punjab	24,359,296.00	34.00	62,968.00	0.00
Rajasthan	56,507,188.00	23.00	76,888.00	0.00
Sikkim	540,851.00	11.00	1,039.00	0.00
Tripura	3,199,203.00	17.00	5,660.00	0.00
West Bengal	80,176,197.00	28.00	143,538.00	5.00
Pondicherry	971,345.00	67.00	3,828.00	0.00
Andhra Pradesh	76,210,007.00	27.00	135,597.00	16.00
Uttar Pradesh	166,197,921.00	21.00	170,424.00	0.00
Jharkhand	26,945,829.00	22.00	27,358.00	0.00
Bihar	82,998,509.00	10.00	51,345.00	0.00
Madhya Pradesh	60,348,023.00	27.00	71,387.00	0.00
Chattisgarh	20,833,803.00	20.00	26,074.00	0.00

Appendix 4:

Bagul, Sameer & Singh, Aakash (2005) *Indian wine industry report 2004-2005*. DSM Marketing Pvt. Ltd., Mumbai, India

In addition to actual report, I exchanged several e-mails with both of the authors concerning insights on Indian wine markets and data not provided in the report.

EconomyWatch, State profiles

<http://economywatch.com/stateprofiles/>

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Appendix 5: Wine data for Statistical analysis

Annexure 5

PREMIUM WINES, VOLUME - CASES

Region	1997	2001-02	2002-03	2003-04	2004-05
North	14000	40000	56000	67200	86016
South	10000	32000	44000	50600	60720
West	24000	67000	95000	114000	147060
East	3500	11000	15000	16800	19320
TOTAL	51500	150000	210000	248600	313116

Annexure 6

PREMIUM WINES, REVENUE- Rs. (CRORES)

Region	1997	2001-02	2002-03	2003-04	2004-05
North	7	21	30	38	47
South	5	16	23	27	31
West	12	35	50	64	81
East	2	5	7	9	10
TOTAL	25	77	110	137	169

Appendix 5:

Bagul, Sameer & Singh, Aakash (2005) *Indian wine industry report 2004-2005*. DSM Marketing Pvt. Ltd., Mumbai, India p.33

Appendix 6: Base for *Statistical analysis*

STATEMENT : GROSS STATE DOMESTIC PRODUCT AT CURRENT PRICES

Sl.	State/UT	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
NORTH												
30.	Chandigarh											
	- GSDP current* (Crore rupees, %)	1,468.00	1,474.00	1,451.00	1,510.00	1,391.00	1,270.00	1,113.00	1,083.00	1,010.00	939.00	746.00
	- GSDP constant*	1,468.00	1,613.00	1,786.00	2,028.00	2,159.00	2,349.00	2,503.00	2,643.00	2,853.00	3,101.00	3,438.00
31	Delhi											
	- GSDP current* (Crore rupees, %)	20,992.00	25,847.00	28,390.00	33,803.00	41,235.00	47,484.00	52,914.00	62,518.00	66,866.00	74,474.00	N/A
	- GSDP constant*	20,992.00	23,503.00	24,110.00	27,268.00	31,499.00	33,022.00	34,549.00	39,234.00	40,900.00	44,135.00	N/A
SOUTH												
1.	Andhra Pr.											
	- GSDP current* (Crore rupees, %)	57,867.00	68,923.00	79,854.00	90,147.00	95,782.00	114,937.00	125,236.00	140,119.00	151,396.00	162,310.00	180,812.00
	- GSDP constant*	57,867.00	61,114.00	64,729.00	68,809.00	67,866.00	76,116.00	79,605.00	86,513.00	90,494.00	92,835.00	99,931.00
6.	Goa											
	- GSDP current* (Crore rupees, %)	2,397.00	2,838.00	3,319.00	3,965.00	4,921.00	6,075.00	6,762.00	7,521.00	7,803.00	8,445.00	N/A
	- GSDP constant*	2,397.00	2,515.00	2,706.00	3,119.00	3,207.00	3,932.00	4,015.00	4,297.00	4,472.00	4,647.00	N/A
11.	Karnataka											
	- GSDP current* (Crore rupees, %)	41,079.00	47,915.00	56,215.00	65,176.00	73,046.00	87,841.00	94,972.00	104,492.00	105,658.00	113,929.00	N/A
	- GSDP constant*	41,079.00	43,387.00	46,167.00	50,302.00	53,778.00	60,620.00	63,851.00	70,090.00	69,449.00	72,399.00	N/A
12.	Kerala											
	- GSDP current* (Crore rupees, %)	26,326.00	31,877.00	38,762.00	44,460.00	49,484.00	56,247.00	62,520.00	69,770.00	72,349.00	80,844.00	90,172.00
	- GSDP constant*	26,326.00	28,501.00	29,788.00	30,890.00	31,783.00	34,064.00	36,516.00	37,670.00	38,235.00	40,771.00	43,344.00

Sl.	State/UT	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
WEST												
15.	Maharashtra											
	- GSDP"current"(Crore rupees,%)	113,320.00	130,073.00	157,818.00	179,311.00	195,168.00	209,737.00	243,316.00	238,678.00	266,875.00	293,689.00	328,808.00
	- GSDP"constant"	113,320.00	116,213.00	129,567.00	136,149.00	143,723.00	147,963.00	162,287.00	156,406.00	164,356.00	175,952.00	187,386.00
EAST												
3.	Assam											
	- GSDP"current"(Crore rupees,%)	15,143.00	17,551.00	19,411.00	21,017.00	22,806.00	25,558.00	29,263.00	31,476.00	33,447.00	36,548.00	40,116.00
	- GSDP"constant"	15,143.00	15,572.00	16,017.00	16,487.00	16,650.00	16,614.00	17,142.00	17,822.00	18,619.00	19,242.00	20,298.00
20.	Orissa											
	- GSDP"current"(Crore rupees,%)	18,537.00	22,224.00	27,118.00	26,504.00	32,235.00	35,581.00	38,629.00	38,728.00	42,403.00	44,684.00	51,557.00
	- GSDP"constant"	18,537.00	19,528.00	20,539.00	19,566.00	22,136.00	22,678.00	23,821.00	23,643.00	25,406.00	25,539.00	28,255.00
28.	West Bengal											
	- GSDP"current"(Crore rupees,%)	53,424.00	62,032.00	73,865.00	82,075.00	97,966.00	115,516.00	126,834.00	139,863.00	156,495.00	167,137.00	NA
	- GSDP"constant"	53,424.00	57,060.00	61,290.00	65,562.00	70,971.00	75,483.00	80,676.00	85,832.00	92,001.00	98,374.00	NA

Appendix 6:

Source: For Sl. No. 1-32 -- Directorate of Economics & Statistics of respective State Governments, and for All-India -- Central Statistical Organisation

Appendix 7: Explanation of some regression analysis terms

The *Two-Sample t-Test* analysis tools test for equality of the population means underlying each sample. The three tools employ different assumptions: that the population variances are equal, that the population variances are not equal, and that the two samples represent before treatment and after treatment observations on the same subjects.

A t-Statistic value, t , is computed and shown as "t Stat" in the output tables. Depending on the data, this value, t , can be negative or non-negative. Under the assumption of equal underlying population means, if $t < 0$, " $P(T \leq t)$ one-tail" gives

the probability that a value of the t-Statistic would be observed that is more negative than t. If $t \geq 0$, "P(T \leq t) one-tail" gives the probability that a value of the t-Statistic would be observed that is more positive than t. "t Critical one-tail" gives the cutoff value so that the probability of observing a value of the t-Statistic greater than or equal to "t Critical one-tail" is Alpha.

"P(T \leq t) two-tail" gives the probability that a value of the t-Statistic would be observed that is larger in absolute value than t. "P Critical two-tail" gives the cutoff value so that the probability of an observed t-Statistic larger in absolute value than "P Critical two-tail" is Alpha.

The F-Test Two-Sample for Variances analysis tool performs a two-sample F-test to compare two population variances. For example, you can use the F-test tool on samples of times in a swim meet for each of two teams. The tool provides the result of a test of the null hypothesis that these two samples come from distributions with equal variances against the alternative that the variances are not equal in the underlying distributions.

The tool calculates the value f of an F-statistic (or F-ratio). A value of f close to 1 provides evidence that the underlying population variances are equal. In the output table, if $f < 1$ "P(F \leq f) one-tail" gives the probability of observing a value of the F-statistic less than f when population variances are equal and "F Critical one-tail" gives the critical value less than 1 for the chosen significance level, Alpha. If $f > 1$, "P(F \leq f) one-tail" gives the probability of observing a value of the F-statistic greater than f when population variances are equal and "F Critical one-tail" gives the critical value greater than 1 for Alpha.

P-value of a z-test. The z-test generates a standard score for x with respect to the data set (array) and returns the two-tailed probability for the normal distribution. You can use this function to assess the likelihood that a particular observation is drawn from a particular population.

Appendix 7:

Source: *Excel*, Microsoft